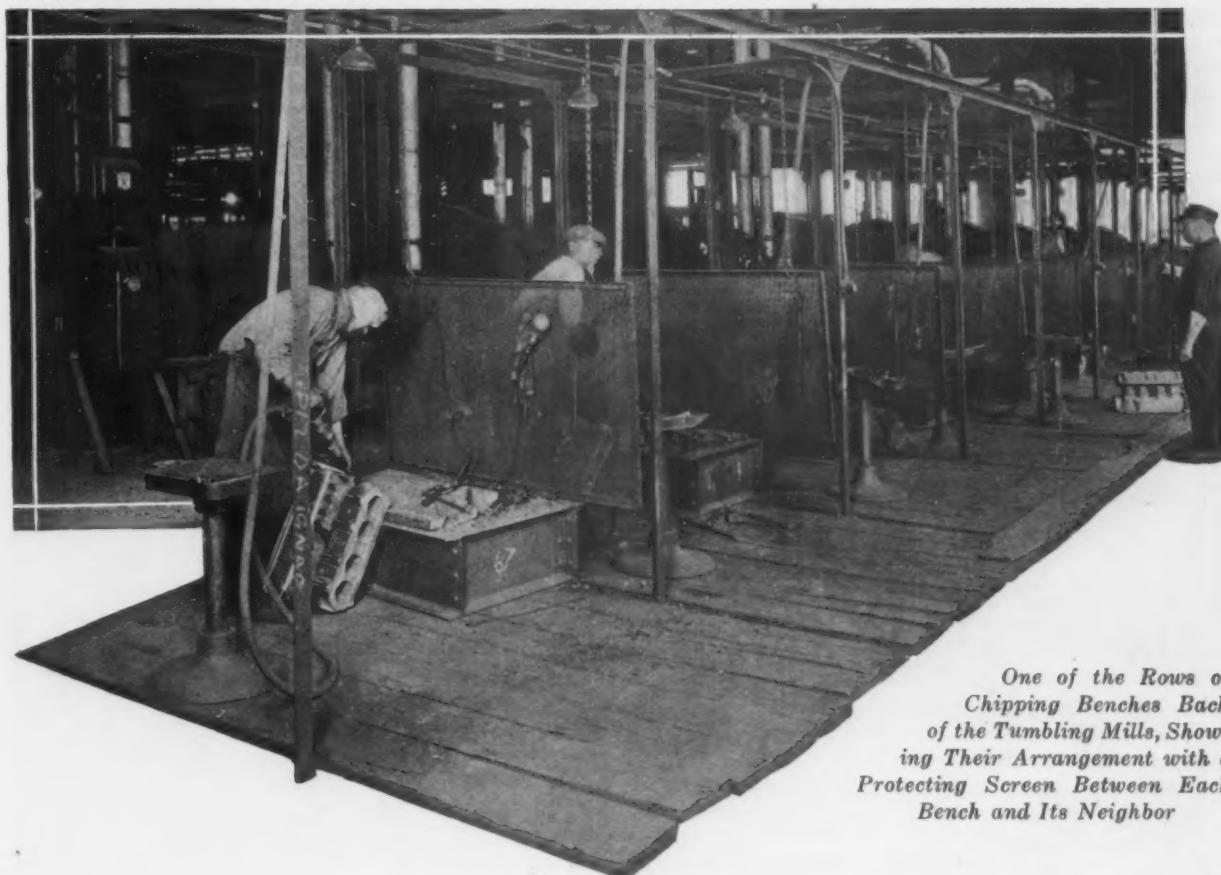


THE IRON AGE

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*One of the Rows of
Chipping Benches Back
of the Tumbling Mills, Show-
ing Their Arrangement with a
Protecting Screen Between Each
Bench and Its Neighbor*

Cutting Cleaning Room Costs

High Production Work on Automobile Cylinder
Castings—Saving in Man Power a Feature

WHEN the Ferro Machine & Foundry Co., Cleveland, two years ago installed additional molding units for continuous molding and pouring in the manufacture of automobile cylinder castings, it was found that, with the great increase of its speed of production in the foundry, better cleaning room facilities would have to be provided to make it possible for the cleaning room to keep up with the foundry. A description of these foundry units for making automobile cylinders appeared in THE IRON AGE, April 5, 1923. Construction of the cleaning department was started late in the year and, while this was used last year, only recently was the entire equipment put into operation.

The new cleaning room is laid out and equipped for the economical cleaning of cylinder castings through the saving of man power. Work moves, as far as possible, in a straight line from the time the castings reach the department until they are cleaned and loaded on cars for shipment. Handling is done largely

on conveyors, so that only two trucking operations are required for the largest production unit that handles Chevrolet cylinder castings. The first trucking is hauling the castings from the foundry and the second is conveying them from the chipping benches to the water testing equipment.

With the plant carefully laid out for a certain fixed production, the tumbling barrels, sand blast rooms, chipping benches and other equipment are provided in sufficient numbers to take care of the various operations at the designated production speed, so that an even balance is maintained and the work progresses continuously from start to finish. With the established speed schedule, a Chevrolet cylinder reaches the loading car 3 hr. after leaving the core knock-out machine. The general plan of having each part keyed up to a certain production rate is applied also to the capacity and speed of the conveyors. The cleaning department has a capacity for cleaning 3000 cylinders in

a 9-hr. day, 2000 of the Chevrolet type and 1000 cylinders of the larger types.

The cleaning department is a modern type of factory building, or rather three connected buildings, of brick and steel construction with steel sash, and is located a short distance from the foundry. The cleaning room is 100 x 204 ft. Adjoining it on one side is a core knock-out department 70 x 100 ft., and at the opposite end a salvage department, 60 x 160 ft.

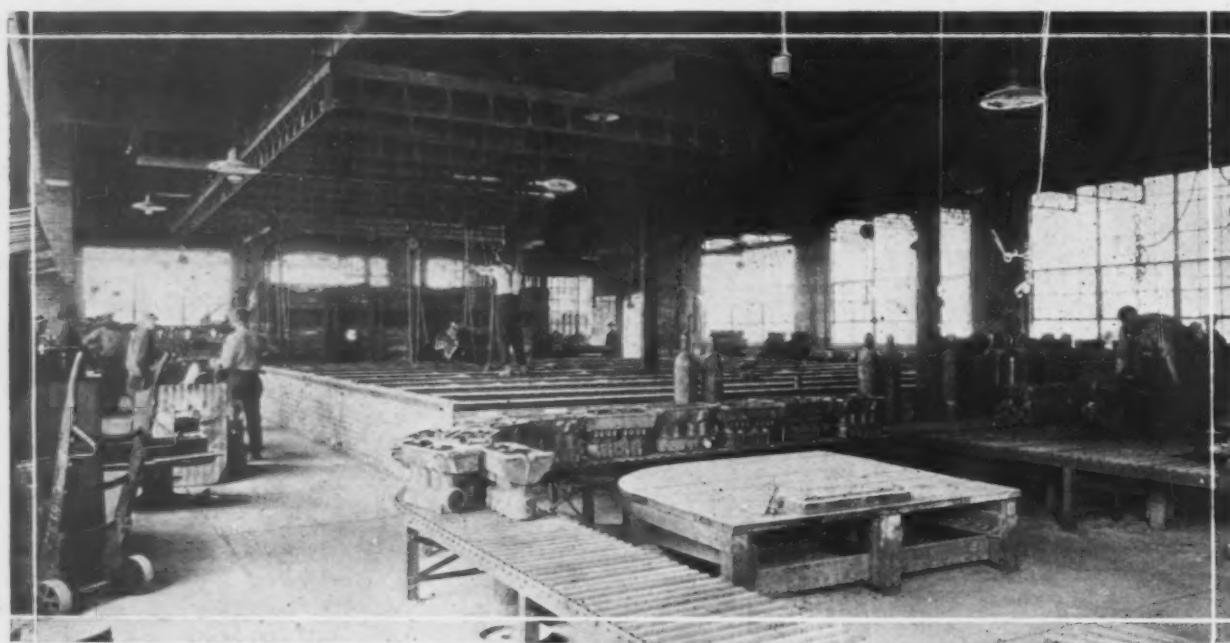
Cylinder castings, after being shaken from the flasks on the molding floor in the foundry, are loaded on trucks and are stored in a court for about half a day, or until they have cooled. These trucks have a capacity of 25 Chevrolet cylinders or about 17 larger motor cylinders. Gasoline tractors are used to haul the trucks from the foundry to the court and thence to the core knock-out room.

A battery of six Stoney patented core knock-out machines, arranged in parallel lines, is located in the knock-out building. A seventh knock-out machine will be installed shortly. The castings are lifted from the truck and set on the supporting bracket of the knock-

After the cores are knocked out, the smaller cylinders are placed on the power conveyor by means of the chain hoists and the larger cylinders that are to be sand blasted are placed on trucks and carted to the sand blast rooms.

There are 20 tumbling barrels in two parallel rows, ten on each side of the conveyor. These are square barrels, the first three being 40 x 40 x 84 in., and the remainder 38 x 38 x 72 in. Each barrel has a capacity of 26 castings and the cylinders are tumbled for 2 hr. One 30-hp. motor is used to drive two barrels, the drive being through a clutch and gears. Above each barrel is a chain hoist for handling the barrel lids. Another chain hoist is located above each motor so that, if repairs are needed, a motor can be removed quickly and another substituted. The castings are handled to and from the barrels by hand. The Chevrolet castings weigh 120 lb. and can be easily handled by two men. A platform at the proper working height is located between the conveyor and the tumbling mills.

Back-of each row of tumbling barrels is a row of



General View in the Salvage Department. Castings are received on a roller conveyor along the wall in right background, go through the heating furnace at the rear and then to welding stations at the left, where defects are welded. Then they are placed in the cooling pits in the center. After cooling, the welds are ground (at right of picture) and the castings move along toward the cleaning room, to the sand-blast cabinets, on roller conveyors, one of which is shown in the foreground

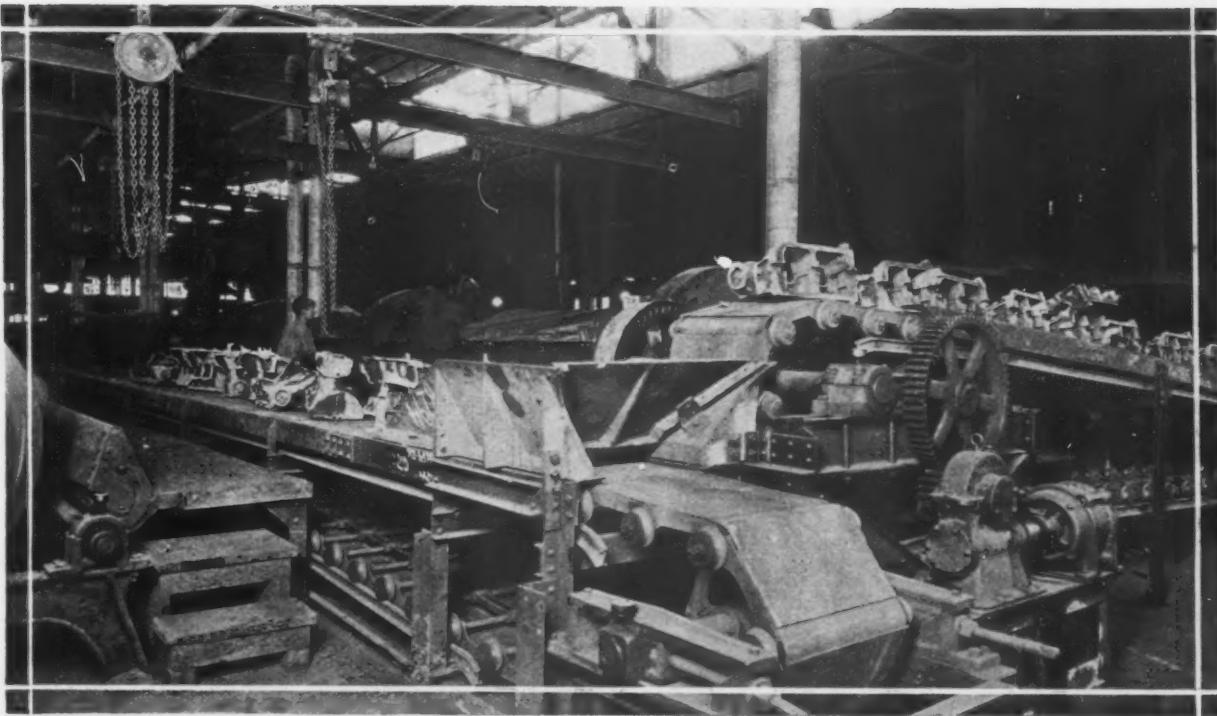
out machine by means of a chain hoist located above each machine. When the air is turned on, the core is shaken out by the vibrating action of the machine in from 3 to 6 sec. The sand drops through the floor onto a belt which conveys it to the end of the building. It is passed over magnetic pulleys to extract the metal and is elevated to a 75-ton storage hopper over a railroad track outside. From 25 to 40 per cent of this sand is taken back to the foundry and used again. The remainder is hauled to a dump.

Back of the knock-out machines is a plate-type power conveyor, 147 ft. long and 20 in. wide, that extends into the cleaning room, where it connects at right angles with a similar conveyor that serves the tumbling mills. The castings are discharged from the end of the first conveyor to the second conveyor. Both conveyors are driven by variable speed motors providing a conveyor speed of from 7 to 13 ft. per min., but a speed of about 10 ft. per min. is that required for full production.

Chevrolet cylinders are all cleaned in tumbling barrels and the larger cylinders in sand-blast rooms.

20 chipping benches. After tumbling, the castings are taken from the barrels by hand and placed in front of the adjoining bench. Each chipper has a complete installation, with individual connections for air and light. Suspended on a chain from frame work of angle iron construction, a wire mesh screen 4 x 5 ft. separates the chipping benches, so that a workman is fully protected from metal flying from the bench of the adjoining chipper.

Based on a production of 2000 cylinders in 9 hr., and an average chipping speed of seven pieces per hour by each chipper, the unit requires 32 chipping benches, but a total of 40 is provided, to assure ample chipping output in case some of the chippers are absent. After chipping, the cylinder is water tested for leaks in the jackets and valve pockets and then inspected in a test fixture, one of which is provided for each kind of cylinder for checking all surfaces that are to be machined. After testing, the castings are placed on roller conveyors on which they are pushed a short distance to the side of the building and through doors into box cars. There are three loading doors and



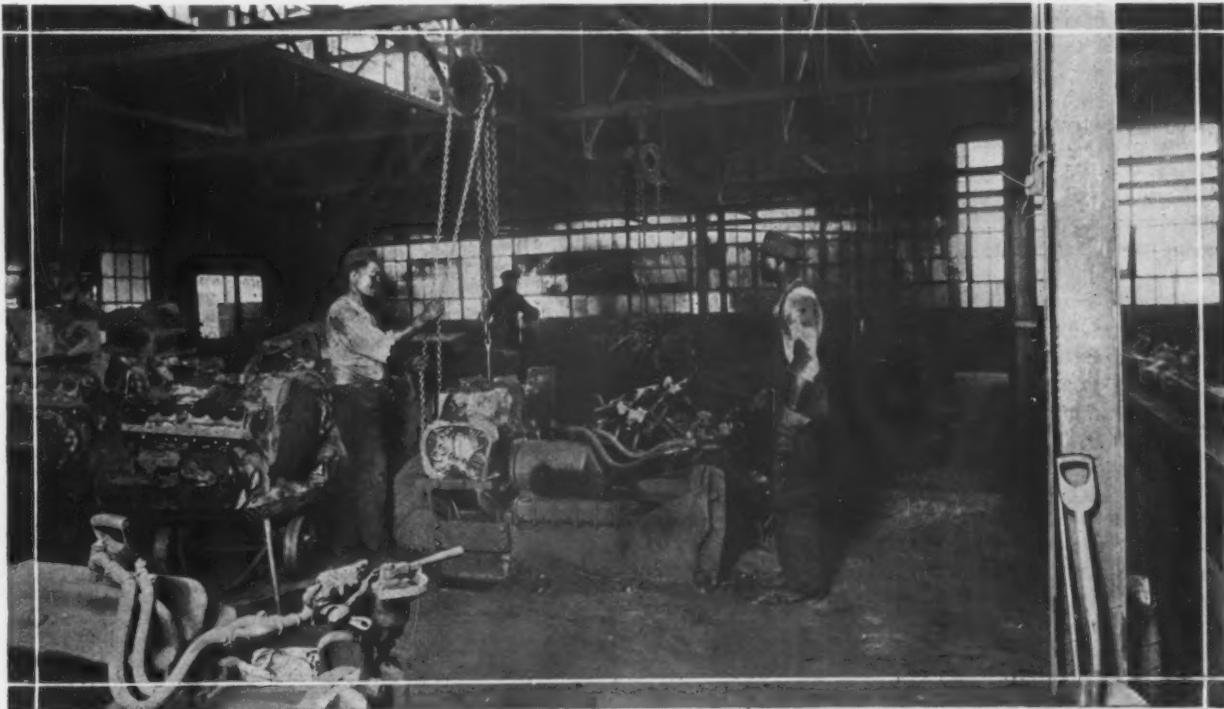
The Two Conveyors That Carry the Chevrolet Cylinder Castings from the Core Knock-Out Machines to the Tumbling Barrels, Which Are Located in Rows on Each Side of the Conveyor at the Left

two parallel double tracks, with a capacity of six cars. The tracks are depressed to place the car floors on a level with the cleaning room floor. Cars are spotted side by side on the two tracks, those on the outer side being loaded first, the movable roller conveyor extending through the first car into the car on the outer track.

Such cylinders as are machined in the plant are trucked to the machine shop instead of going to the cars. Rejected castings are marked after the water test and inspectors decide whether they are to be salvaged or scrapped. If they are scrapped, they are loaded on trucks and sent to the cupolas.

The larger cylinders, for Paige, Chrysler and Hupmobile cars, on leaving the core knock-out machines are placed on trucks and taken a short distance to the sand-blast rooms. These are four in number, 10 x 10 ft., built in double units and located side by side. A very efficient method is provided for handling the cylinders from the trucks to the sand-blast room. The castings are picked up with a pneumatic hoist operated in front of each pair of rooms and the hoist lowers it onto two hooks suspended from a trolley, the track of which extends through the rooms and circles around the side to the front.

After sand blasting, the castings are lowered to the



Automobile Cylinder Castings Are Brought to the Knock-Out Room on Trucks, and a Hoist Places Them on Core Knock-Out Machines, of Which There Are Six in a Row, and on Which Cores Are Knocked Out in from 3 to 6 Sec. The smallest cylinders go from the knock-out machines to the power conveyor at the extreme right, which carries them to the tumbling barrels



The Larger Cylinders Are Sand Blasted Instead of Tumbled. Trucks haul them from the core knock-out machines to the front of the sand-blast rooms. Here a pneumatic hoist (operated by man at extreme right) picks up the casting and swings in position to permit its being grabbed by the hooks attached to the trolleys, doing away with all hand lifting labor. The castings are carried through the sand-blast rooms on the trolleys

floor back of the sand-blast room and the trolleys carrying the handling hooks are shoved around to the front of the sand-blast rooms for reloading. Back of the sand-blast rooms are three swing-type grinders, for each pair of sand-blast rooms, which remove the fins, etc. Then the castings pass along to chipping benches arranged in rows and similar to those used for handling the smaller castings. After grinding and chipping, the cylinders are water tested, inspected and loaded on cars.

At one side of the knock-out room are several small tumbling barrels for tumbling pistons, cylinder heads and miscellaneous castings and three small grinding machines are provided for grinding these castings.

Reclaiming Castings by Welding

As defective castings cannot be avoided, these must be reclaimed, when possible, to attain the greatest economies in production costs. The salvage department provided for this work is a complete and well-arranged unit with equipment for cleaning and grinding the castings after welding, so that when they leave the department they are ready to load on cars. Castings having repairable defects are placed on a roller conveyor that extends from the end of the cleaning room along one side of the salvage department. In this department is one oil fired pre-heating furnace for heating before welding. This furnace is operated at a temperature of 1100 to 1200 deg. Fahr. The castings coming from the roller conveyor are placed side by side on a table that extends through the furnace and are pushed through the furnace by a pneumatic pusher located at the front of the table. The furnace has a capacity of about 20 castings and they remain in the furnace until they reach a cherry red heat, when they go to the welding unit.

Five oxy-acetylene welding stations are provided for welding the defects. Formerly the cylinders were placed in sand after welding, so that they would cool slowly. For this method of cooling the use of cooling pits has been substituted and the new method is found

more satisfactory in that the cooling is more uniform and fewer hard spots are found in the iron when the cylinders are machined. Ten pits, located near the center of the room, are of brick construction built up from the floor level. The pits, 3 ft. wide, 2½ ft. high, 36 ft. long, are located side by side, with corrugated sheet covers that are easily removable. Openings are provided in the brick partitions between the pits, to allow the circulation of air. The castings are left in the pits about 3 hr. A trolley system is provided for handling the castings from the roller conveyor to the furnace and on to the welding machines and pits. After leaving the pits the castings are handled on roller conveyors.

After cooling in the pits the castings are inspected and the welds are ground with portable electric grinding machines suspended from above, and counter-weighted so that the machine operator can raise or lower his grinder as desired. Two sand-blast cabinets are provided for cleaning the cylinders after grinding. Following sand blasting they are ready for shipment.

The dust-arresting equipment is located in a separate building adjoining the cleaning department. There are two dust-arresting units for the four sand-blast rooms, two for the large tumbling barrels, one for the small sand-blast cabinets and one for the small tumbling barrels. The arrangement of the dust-arresting equipment is rather unusual in that the blowers are located beneath the screening equipment. The structure housing the equipment is of sufficient size to provide open space and head room for a railroad car beneath. The material collected by the dust arrestors is dumped directly into cars from hoppers beneath the arrestors.

The entire plant was designed and erected under the direction of the Stoney Foundry Engineering & Equipment Co., Cleveland. The dust-arresting equipment, tumbling barrels and the cleaning room sand-blast equipment were supplied by the W. W. Sly Mfg. Co. and the sand-blast cabinets in the salvage building by the American Foundry Equipment Co. The power conveyors were built by the C. O. Bartlett & Snow Co.

Simplified Practice Made Known

Increasing Use of Tags to Designate Goods Shipped —Metal Lath, Wire Fencing and Lumber Included

MANUFACTURERS in the United States who are turning out their products in conformity with simplified practice are showing more interest in making the fact known to consumers. This is strikingly disclosed in the numerous labels and brands which have been received at the division of Simplified Practice, Department of Commerce, and which are now to be observed along highways and byways.

Lumber is probably the outstanding line which has turned to this form of advertising as a mark of quality goods efficiently produced. It was one of the first to cooperate with the Department of Commerce. At the same time a number of metal lines are marking or tagging their goods to show consumers that they are made in accordance with simplified practice. Two prominent lines which are so labeling their products are metal laths and wire fencing. As shown by accompanying illustrations, the metal lath label consists of an oval-shaped metal tag, which is attached to shipments of metal lath, in which it is announced that the lath is produced in accordance with simplified practice and the weight is given. Paper tags accompanying shipments of wire fencing announce on one side that the fencing is made in conformity with simplified practice, while on the reverse side emphasis is given to the

quality of the product by reason of inspection made under simplified practice.

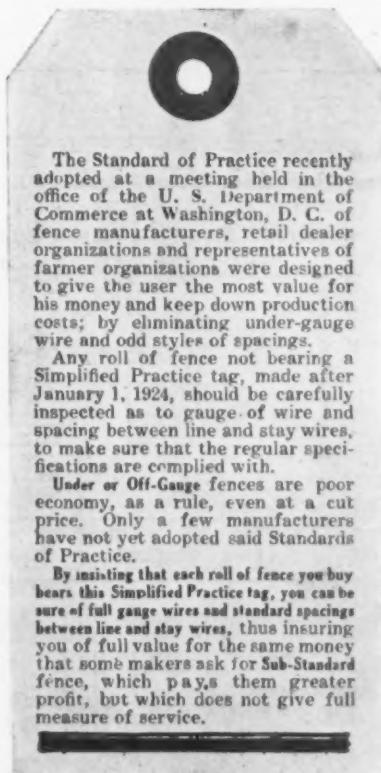
Working Pressures Shown on Range Boilers

Other lines related to the iron and steel industry have resorted to the practice of labeling goods made according to simplified practice or are preparing to do so. Among the latter are manufacturers of range boilers, who agreed in conference to stencil on range boilers the working pressure, to show whether it is the standard of 65 lb. per sq. in., or is 100 lb. per sq. in., the "extra standard." Brass plumbing trap makers also have agreed to stamp the gage of material on the trap, while makers of hot water storage tanks have agreed to stencil on the tanks the working pressure, and similar action is expected to be taken soon by makers of elevated steel tanks.

Sheet steel makers have agreed not to roll roofing material lighter than 28 gage. In this connection it is interesting to note the unanimous decision at the recent meeting of "sheet steel executives" at White Sulphur Springs, W. Va., that hereafter producers of galvanized sheets shall brand seconds as such, so that they cannot be mistaken for prime steel.

Progress made by lumber mills in grade marking and

At Right Is a Tag of the Southern Pine Association Used in Grade Marking Lumber, in Accordance with Simplified Practice Recommendations. Below it is a tin tag attached to rolls of metal lath when shipped for use in building construction



The Standard of Practice recently adopted at a meeting held in the office of the U. S. Department of Commerce at Washington, D. C., of fence manufacturers, retail dealer organizations and representative of farmer organizations were designed to give the user the most value for his money and keep down production costs; by eliminating under-gauge wire and odd styles of spacings.

Any roll of fence not bearing a Simplified Practice tag, made after January 1, 1924, should be carefully inspected as to gauge of wire and spacing between line and stay wires, to make sure that the regular specifications are complied with.

Under or Off-Gauge fences are poor economy, as a rule, even at a cut price. Only a few manufacturers have not yet adopted said Standards of Practice.

By insisting that each roll of fence you buy bears this Simplified Practice tag, you can be sure of full gauge wires and standard spacings between line and stay wires, thus insuring you of full value for the same money that some makers ask for Sub-Standard fence, which pays them greater profit, but which does not give full measure of service.

At Left and Below Are the Two Sides of a Paper Tag Used for Wire Fencing, Made According to the Simplified Schedule of the Department of Commerce



trade marking has been especially notable. The Southern Pine Association is credited with being the first organization of lumber manufacturers in the world to put grade marking into operation. The final decision provided that this should be made effective in subscribing mills on April 1, 1925, and these mills are now producing lumber officially grade marked and certified "SPA." It is stated that mills already are receiving orders for lumber grade marked and trade marked "SPA." This practice long has been advocated by architects, contractors, retail lumber dealers and lumber users. It is declared that it assures the users nothing but first quality lumber and it is so marked that it can be checked back to the source of production.

In urging simplification and standardization the Department of Commerce has repeatedly pointed out the benefits through the elimination of waste, excessive stocks, heavy investments, great amount of storage space, handling costs, etc. The campaign has reached the point, it is contended, where many manufacturers who have adopted simplified practice maintain that it is necessary as a matter of meeting competitive conditions. In this connection some interesting observations were made before the National Association of Stove Manufacturers at Hotel Astor, New York, in May, by Edwin W. Ely of the Division of Simplified Practice. In part, he said:

Experience is showing that in most industries the demand comes chiefly for about one-fifth of the variety of items manufactured. The other four-fifths of the variety manufactured furnish, on the average, but one-fifth of the demand. The elimination of these four-fifths, as based on surveys of experience, permits concentrated effort on the production of the things really needed. However, application of simplification to an industry's output does not mean that such added variety shall

not be manufactured. It rather puts the "special" or "different" varieties in their proper class, where they bear their own burden of expense and where the costs incident to their manufacture are not spread out over the commonly-used varieties.

While the Division of Simplified Practice was set up to cooperate with industries in undertaking this house-cleaning, its members were charged by Secretary Hoover, at the creation of the division, with cooperation, not interference. The eliminations are done by the industry itself—not by the division. One chief function of the division has been to act as a clearing house and focussing point to assemble the information gathered, and to present it to the entire industry in its true perspective. Such information has been acted upon by the groups in a manner which was to the mutual benefit of all concerned.

No Backward Step Has Been Taken

And when this action has been taken, the division has supported and broadcasted the results, so that the greatest good might be achieved. That progress of invention and perfection of mechanical operations may be taken advantage of, the industries undertaking simplified practice have periodical revision conferences. But it is significant that no industry which has achieved such simplification has ever reinstated any of the excess variety originally stricken out, and that constant progress has been made in the direction of further reductions.

Increasing press of competition, both here and abroad, is calling for an overhauling of our manufacturing and distribution methods and, unless the stove industry takes early action, its members will lose many benefits which will ultimately have to be conserved, for Tomorrow's Profits Must Come from Today's Wastes. Millions of dollars of losses from such causes are being saved to other industries.

High Capacity Tandem Blooming Mills*

Continuous Type with Multiple Stands and Selective Finishing Stands in Gary Plant of Illinois Steel Co.

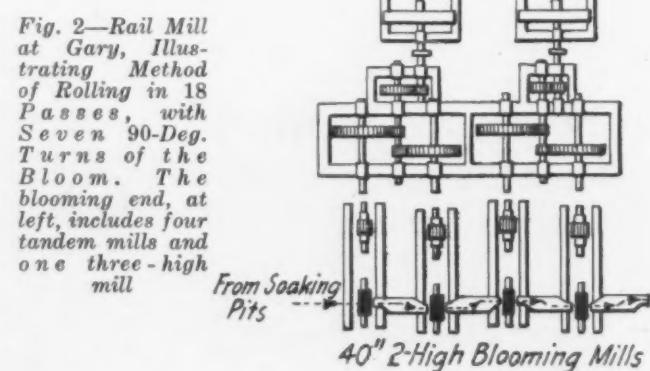
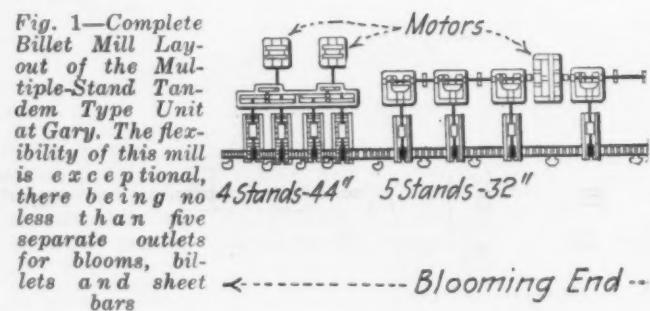
THERE are three outstanding types of blooming mills. The most important is the two-high reversing bloomer, with its inherent possibilities of wide range of products and product sizes. Next in importance is the three-high non-reversing type, with a limited range of products and product sizes. A third outstanding type is the multiple-stand tandem mill, with but a single pass through each stand and having a limited range of product sections and sizes. Both the tandem type and the three-high bloomer are usually special purpose mills. The tandem type is that discussed here.

The Gary billet mill has almost nothing in common with the two general types previously described. It was built to roll an enormous tonnage of varying sizes of product from the initial heat of the ingot. To accomplish this, unusual finishing capacity was required. I believe the best way to explain the reason for this type of mill is to show the billet mill in its entirety. Fig. 1 shows in diagrammatic form the complete billet mill layout.

Five Outlets for Material

It will be observed that in line with, and immediately beyond, the nine stands of blooming rolls is a six-stand 24-in. continuous mill. Between the continuous mill and the blooming mill is a transfer for moving the bloom over to and in front of a bloom shear, which in turn delivers to a table served by two cooling beds; this is product outlet No. 1.

After leaving the 24-in. continuous mill, the steel may continue directly ahead to a duplex billet shear,



*Taken from a paper "Blooming Mills and Blooming Mill Practice," by W. H. Bailey, chief engineer Illinois Steel Co., Chicago. This paper was read May 22, at New York, before the American Iron and Steel Institute.

which delivers in turn over a conveyor to a series of billet loading chutes; this comprises outlet No. 2.

Or the steel, after leaving the 24-in. continuous mill, may be transferred to one side and, after being sheared, sent to one of the cooling beds previously mentioned; this constitutes outlet No. 3.

Or, coming from the 24-in. continuous mill and being transferred as described, the billet may be sent ahead through an 18-in. continuous mill and onto hot beds; outlet No. 4.

Or, after leaving the 24-in. mill, may be transferred in the opposite direction to that just described and through an 18-in. continuous sheet bar mill; outlet No. 5.

There has passed through this mill somewhat in excess of 123,000 tons of finished product in one month.

Another Method of Doing It

A variation of this type of mill is the blooming end of the Gary rail mill (see Fig. 2), comprising four stands of 44-in. rolls in tandem followed by a 40-in. three-high blooming mill.

In this case the four stands of two-high blooming mills, comprising passes Nos. 1, 2, 3 and 4, which operate respectively at 6, 6, 10 and 10 r.p.m., are driven by two 2000-hp. 3-phase induction motors, each motor driving two stands. The motor speed is 214 r.p.m., and operation is at 6600 volts. The ingot is turned through 90 deg. after each stand.

Passes 5 to 9 are taken in the 40-in. three-high mill, with a 90-deg. turn for each pass. This mill is served by two lifting tables and is driven by a 6000-hp. 3-phase induction motor operating at 75 r.p.m., and at 6600 volts.

Between the three-high mill and the 28-in. roughing mill is 10 x 10-in. bloom shear. The roughing mill is served by a tilting table by means of which passes 10, 11 and 12 are taken. A 28-in. forming mill, with pass 13, is next encountered, after the bloom has been turned, and then the bloom enters pass 14 of the 28-in. finishing mill. Again turned 90 deg., the bloom is carried across a transfer table and, moving back to-

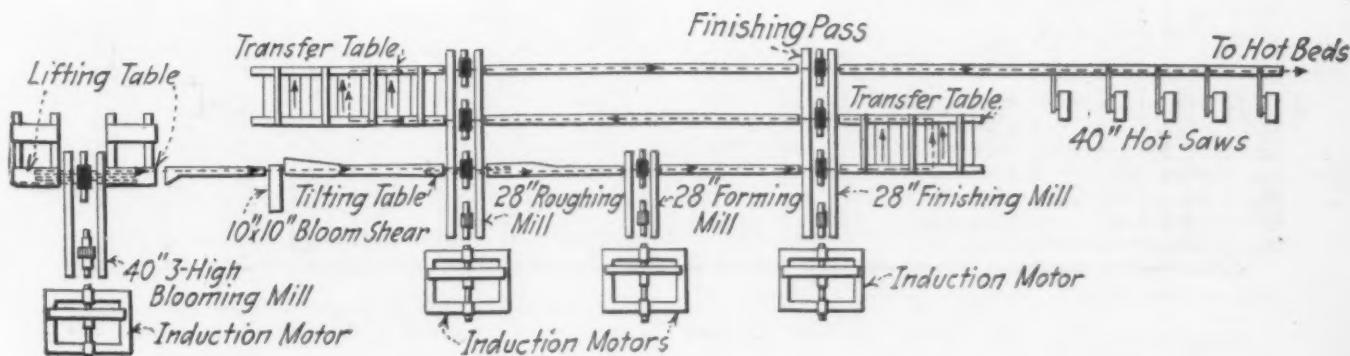
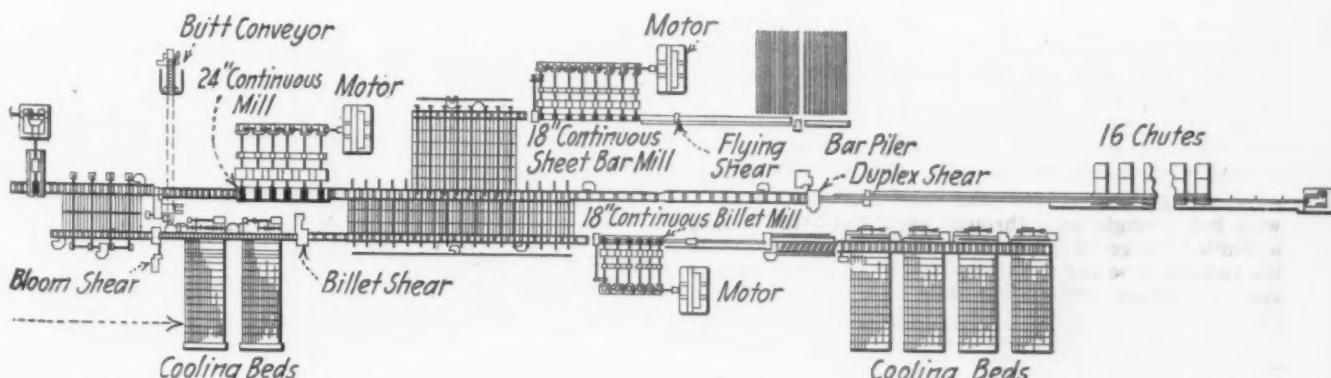
ward the original blooming mill, runs through the first edging pass, No. 15, in line with the finishing mill rolls.

It gets the second edging pass, No. 16, in a set of rolls in line with the 28-in. roughing mill. Again it is carried sideways on a transfer table, after which it goes through pass 17 and the finishing pass 18, these being in line respectively with the 28-in. roughing mill and the 28-in. finishing mill. Passing a battery of hot saws it reaches the cooling bed.

All three of the 28-in. mills are operated by 3-phase induction motors, taking current at 6600 volts. The roughing mill, with the two added stands in line with it, has a 6000-hp. motor operating at 83 r.p.m. The forming mill is driven by a 2000-hp. motor at 68 r.p.m. The finishing mill has a 6000-hp. motor at 88 r.p.m.

To Construct Calumet Harbor Improvement, Chicago

The Lake Calumet industrial harbor ordinance, with several amendments dictated by Mayor Dever of Chicago, has been passed by the Chicago city council and signed by the mayor. Under this instrument the New York, Chicago & St. Louis will construct the first unit of the harbor improvement at a cost of \$600,000. The lake, which lies in the so-called Calumet industrial district, between South Chicago and Hegewisch and Pullman, is connected by the Calumet River with the South Chicago harbor of Lake Michigan. The amendments permit the city to take over the harbor if the railroad fails to comply with the provisions of the ordinance and declares for the full and free use of the navigable waters of the lake, subject to legal regulations. In return for undertaking the improvement the railroad is given the privilege of building a belt line around the lake. The first unit of the project will be a 200-ft. channel in the lake leading to the Nickel Plate property. Dredged material will be used by the railroad to fill in its submerged land.



Prices of Steel and Other Products

Metals Lower Than Most Other Commodities—
Changes in Past Year—Course
of Future Prices

BY SIDNEY G. KOON

COMPOSITE prices of both pig iron and finished steel reached a low level last week. In the case of pig iron the figure was the lowest in about 38 months; for finished steel, it was the lowest in about 33 months. This circumstance, together with the fact of its being the middle of the calendar year, makes pertinent another study of the relation of iron and steel prices to the prices of other commodities, such as has been carried in *THE IRON AGE*, at intervals of about six months, for several years.

To form a uniform basis for comparison, prices of the various products considered, which products are the same as those in previous studies of this series, have in all cases been referred to their several levels in 1913. It does not necessarily follow that the interrelationship of prices in 1913 was either normal or ideal, or that prices at that time were in general logically related to each other. In some instances they certainly were not. Nevertheless, the widespread use of 1913 as a basis for studies of this character, and the ready availability of its figures for such statistical comparison, make it in many respects the best basis we have.

Articles covering this subject have been published in *THE IRON AGE* of Jan. 1, 1925, page 46; June 26, 1924, page 1870; Jan. 3, 1924, page 108, and at earlier dates. The products covered are not only specific items or commodities, but also the large wholesale groups reported upon monthly by the United States Bureau of Labor Statistics. These latter, comprising altogether 404 separate items, are given simply in index numbers based upon 1913. The other prices covered are shown in our table, both in the specific value in dollars and cents and in the index price. They are grouped in the diagrams under the headings of building materials, textiles and clothing, foods, fuels, to which are added the items of steel beams and the composite prices for pig iron and for finished steel.

Specific items outside the iron and steel group are as follows: five fuels: bituminous coal, anthracite coal, Pennsylvania petroleum, gasoline and furnace coke;

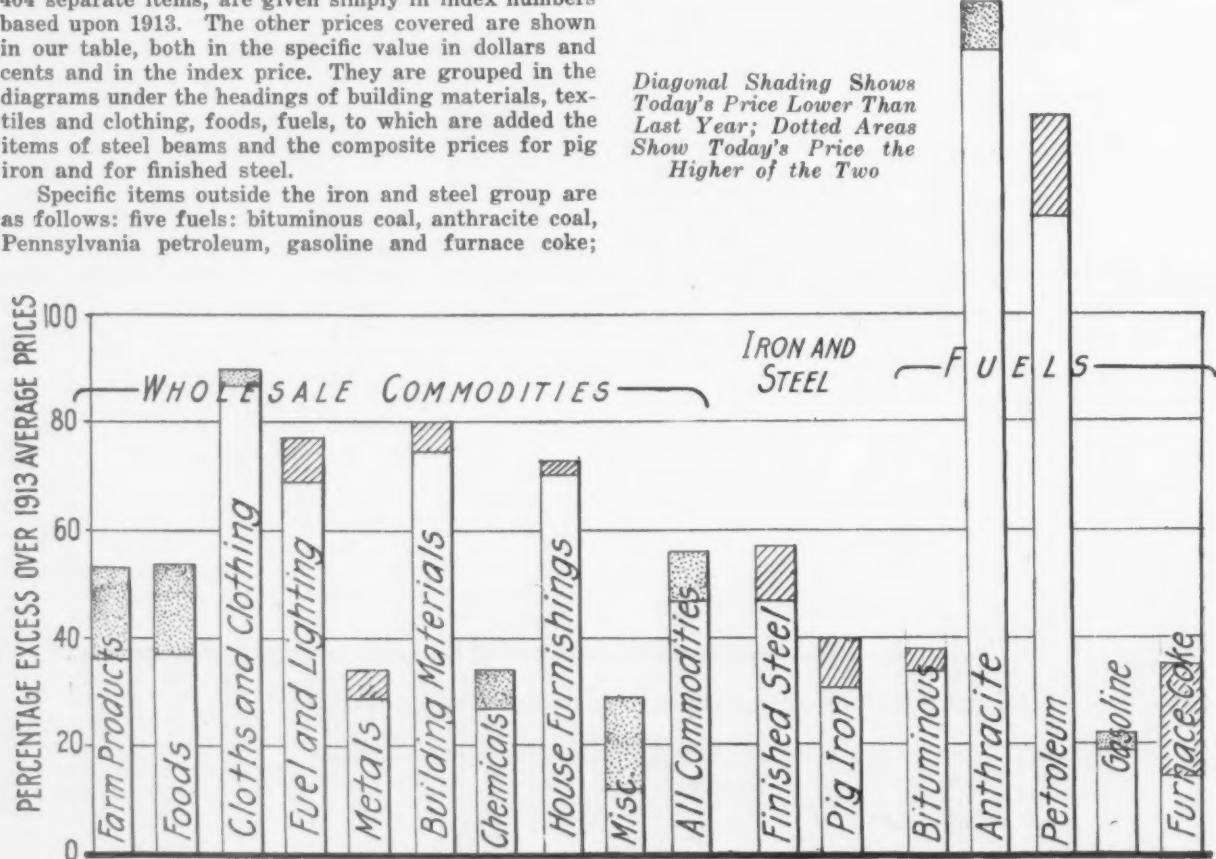
six building materials: yellow pine, red brick, lime, plate glass, cedar shingles and steel beams; five items of textiles and clothing: raw cotton, cotton sheeting, raw silk, worsted suitings and women's shoes; six items of foods: mess pork, smoked hams, white potatoes, flour, milk and granulated sugar.

Quoted prices are drawn from a variety of sources, including market reports of various trade and other publications and official reports, from Washington. All have been translated into three diagrams. Two diagrams, showing the large number of individual items, indicate not only the relation of present prices to those of 1913, but also their relation to those of one year ago. The diagrams are on the basis of the excess of the various prices over those of 1913. The shaded area at the top of each column shows the difference between today's price and that of a year ago. Where today's price is lower than last year's price, the shaded portion has diagonal lines. Where the shaded portion is dotted, the present price is higher than it was a year ago.

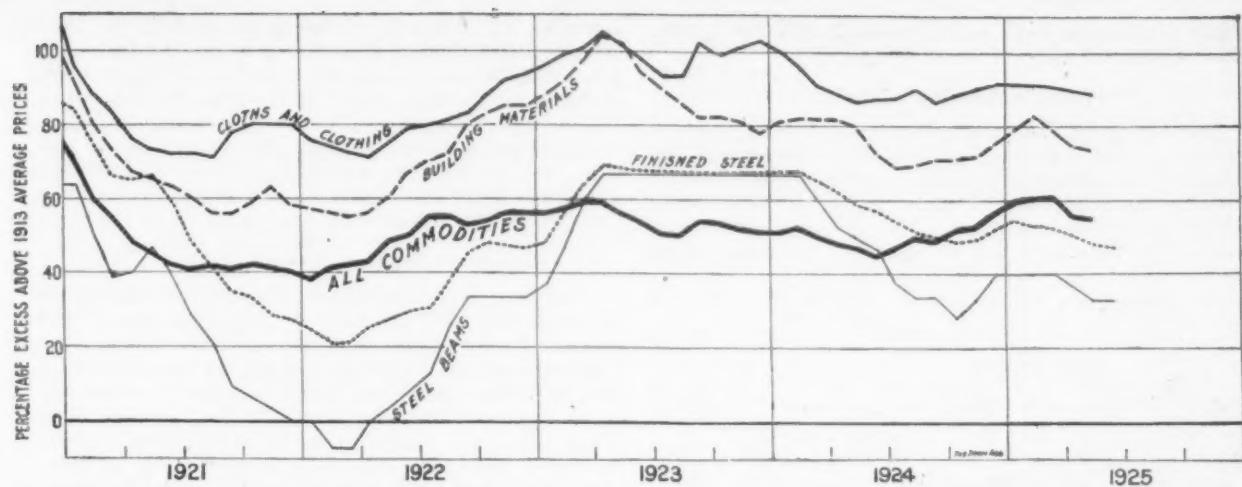
Steel Prices Well Liquidated

In the other diagram the history of prices of certain groups of commodities, together with steel beams, is shown across the past four and one-half years. It will be noted from this diagram that both finished steel and steel beams are at a considerably lower level than is the case with the "all-commodity" group of the Bureau of Labor Statistics. They are much further below the

Diagonal Shading Shows
Today's Price Lower Than
Last Year; Dotted Areas
Show Today's Price the
Higher of the Two



Steel and Iron Items, at 31 to 47 Per Cent Above 1913 Prices, Are Below the General Average—
are they below building materials and the clothing and house furnishing items. The
stance—are below



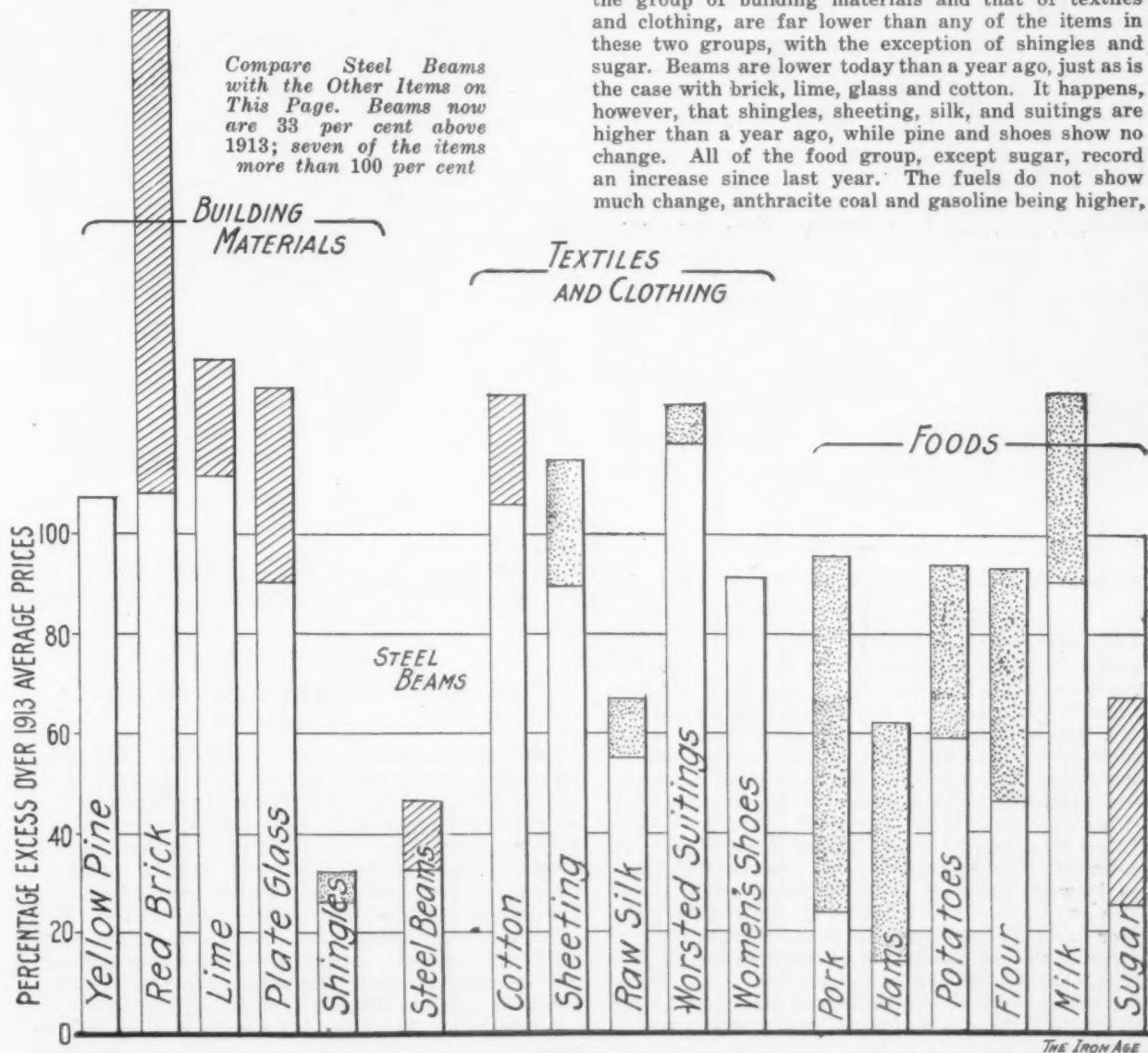
Four Years and More of Price Changes in Finished Steel and Steel Beams, Compared with Cloths and Clothing and Building Materials and with the General Average of "All Commodities" Reported by the United States Bureau of Labor Statistics

recorded prices of building materials and of cloths and clothing. In other words, the prices of finished steel, and particularly of steel beams, have been more nearly liquidated, so to speak, than have the prices of most other commodities.

Not once during the period surveyed has the price of steel beams been so high as either building materials

or cloths and clothing. Not once did finished steel reach the level of clothing, while in only one month in many years did it exceed building materials. The prices of steel products have been consistently lower than those of most other products.

This point is brought out strikingly by a study of the diagrams of specific prices. Particularly it will be noted that steel beams, which have been plotted between the group of building materials and that of textiles and clothing, are far lower than any of the items in these two groups, with the exception of shingles and sugar. Beams are lower today than a year ago, just as is the case with brick, lime, glass and cotton. It happens, however, that shingles, sheeting, silk, and suitings are higher than a year ago, while pine and shoes show no change. All of the food group, except sugar, record an increase since last year. The fuels do not show much change, anthracite coal and gasoline being higher,



Level of "All Commodities" and Below Most of the Separate Items Shown. Particularly metals as a whole are still lower, as some of the non-ferrous metals—copper, for instance—have not yet reached their 1913 levels

while bituminous coal, petroleum and coke are lower, than a year ago.

Less Dislocation of Prices

Something of a change toward stabilization, or more properly toward greater uniformity in prices, will be noted in the group of wholesale commodities reported upon by the Department of Labor. Most of those items which are above the average of all commodities are lower than they were a year ago. All of those items,

Item	Prices Quoted		Index Number	
	Average, 1913	Year Ago	Recent Peak, Figure 1920	Recent Figure 1920
Farm products.....	100	136	247	153
Food, etc.....	100	137	248	154
Cloth and clothing.....	100	187	346	190
Fuel and lighting.....	100	177	281	169
Metals and metal products.....	100	134	203	129
Building materials.....	100	180	300	174
Chemicals and drugs.....	100	127	213	134
House furnishings.....	100	173	275	171
Miscellaneous.....	100	112	208	129
All commodities.....	100	147	247	156
Finished Steel.....	1.663c.	2.610c.	2.424c.	239
Pig Iron (composite)	\$14.70	\$20.54	\$19.13	325
Steel Beams.....	1.50c.	2.20c.	2.00c.	207
<i>Fuels:</i>				
Bituminous coal.....	\$1.34	\$1.85	\$1.80	746
Anthracite coal.....	3.82	11.08	11.49	209
Furnace coke.....	2.41	3.25	2.75	735
Penna. petroleum.....	1.79	4.25	3.90	341
Gasoline.....	16.8c.	20c.	20.5c.	185
<i>Building Materials:</i>				
Yellow pine.....	\$28.50	\$59.00	\$59.00	237
Red brick.....	6.56	20.00	14.13	333
Lime.....	4.43	9.69	9.39	268
Shingles, red cedar.....	1.97	2.48	2.60	334
Plate glass.....	31.8c.	73c.	60.5c.	258
<i>Textiles and Clothing:</i>				
Raw cotton.....	12.84c.	29.25c.	24.25c.	341
Sheeting.....	7.3c.	13.9c.	15.7c.	390
Raw silk.....	\$3.65	\$5.65	\$6.30	445
Worsted suiting.....	1.38	3.02	3.13	392
Women's shoes.....	2.17	4.15	4.15	380
<i>Foods:</i>				
Meat pork.....	\$20.93	\$26.00	\$41.00	225
Smoked hams.....	16.60	19.00	26.90	227
Flour.....	4.62	6.75	8.90	352
Potatoes.....	61.4c.	98c.	1.19	721
Milk.....	3.5c.	6.7c.	8c.	243
Sugar.....	3.45c.	5.78c.	4.40c.	536

except for metals, which are below the general level of all commodities are higher than they were a year ago. The high items have been dropping and the low items have been going up. This condition of affairs, barring the intrusion of extraneous forces, may be expected to presage a period of less violent fluctuation in prices and of better relationship between the prices of different commodities.

Those economists who have looked for a gradual

Considers Basing Import Duties on Wholesale Prices

WASHINGTON, June 30.—The Tariff Commission is expected to make recommendations early in December to Congress regarding the flexible provisions, which, it is generally conceded, have not worked satisfactorily. While it is not proposed to revise the principle of the flexible provisions, the basis of determining adjustments on imports under them should be greatly changed in the opinion of some members of the Commission.

Chairman Thomas O. Marvin is in favor of substituting wholesale prices as the basis for making tariff adjustments for the present basis fixed on the difference between the costs of production in the United States and in foreign countries. He declared that the proper basis for the operation of the flexible tariff is not merely the one element of difference in cost of production, but the difference in competitive conditions which would require ascertainment of invoice prices for competitive articles from foreign countries and wholesale prices of domestic articles packed and ready for delivery.

The present plan, he said, provides for many ways of arriving at costs of production with each method giving a different figure, while the wholesale price plan

lowering of prices from the peak of 1920 to levels which, ultimately, are expected to be not far from those preceding the war, have taken the view that a considerable period of time would be required for this adjustment. Several years ago estimates ranging from 15 to 30 years were made. Certain economic changes, however, which have been introduced by the war conditions and those of the later period, will militate against making this result imminent.

Influences Tending Toward High Prices

The much enhanced wage scale which has grown out of the conflict bids fair to be a lasting influence. Taxes are out of all proportion to pre-war assessments. Other costs of various kinds are far higher than ten years ago, with the result that prices in general cannot well reach their pre-war levels, except through larger use of machinery or through the utilization of new manufacturing processes. Large-scale production is more the order of the day than ever. Its influence in the direction of lower prices is definite, although not always of great moment. All of these elements, however, operating in conjunction, may go far to offset the forces tending to keep prices up or even to increase them.

One outstanding example of the sharp curtailment of prices through large-scale operation combined with new methods is that of rubber. It happens, however, that deliberate curtailment of output in the past few months has wellnigh overcome the large decrease in prices obtained through the operation of economic factors. This commodity is not covered in our analysis, but it may be pointed out that the price dropped from an average of about \$1 per lb. in the spring of 1913 to 14½c. per lb. in the summer of 1922, and during the past few days has reached 85c., or nearly the 1913 level. The opening up of immense new supplies, forced by the heavy demand for automobile uses, accounted for the tremendous drop in the price. Manipulation of prices for the deliberate purpose of making excessive profits has accounted for the great rise of the past few months. All of this change has been brought about within the British Empire, and outside the control of the United States Federal Trade Commission.

Barring any such artificial stimulation of prices, it may be expected that in the long run the prices of commodities in the United States will decline slowly to a level nearer that of 1913 than is occupied by most of them today. Unquestionably this decline will not be uniform nor continuous. Signs point to a moderate increase in prices before this year is out. There will be ups and downs, probably with the latter slightly but steadily predominating, if the teachings of history are to be borne out in the course of the next quarter century.

would be more accurate and dependable, save an inestimable amount of time and money and be fairer to all interested parties.

To Consider Freight Rates on Pacific Coast

SAN FRANCISCO, June 26.—Final plans are being formulated by the traffic committee of the Iron, Steel and Allied Industries of California for a conference with the traffic managers of the carriers, both railroad and steamboat, which will probably be held here early in September, according to Charles S. Knight, industrial director of the California Development Association and secretary of the iron and steel organization. The purpose of the conference is to solve some of the existing freight problems so that producers of iron and steel products in California may extend their market territory in adjacent Western states more economically and efficiently. Arrangements for the meeting will be made by Mr. Knight, Thomas Banning, traffic manager Columbia Steel Corporation, San Francisco, chairman of the Northern traffic committee, and W. J. Boyle, president Boyle Mfg. Co., Los Angeles, chairman of the Southern traffic committee.

NEW DRILL AND TAPPER

Semi-Automatic Machine Toolled for Work on Gas Cock Plugs, but Adapted for Other Uses

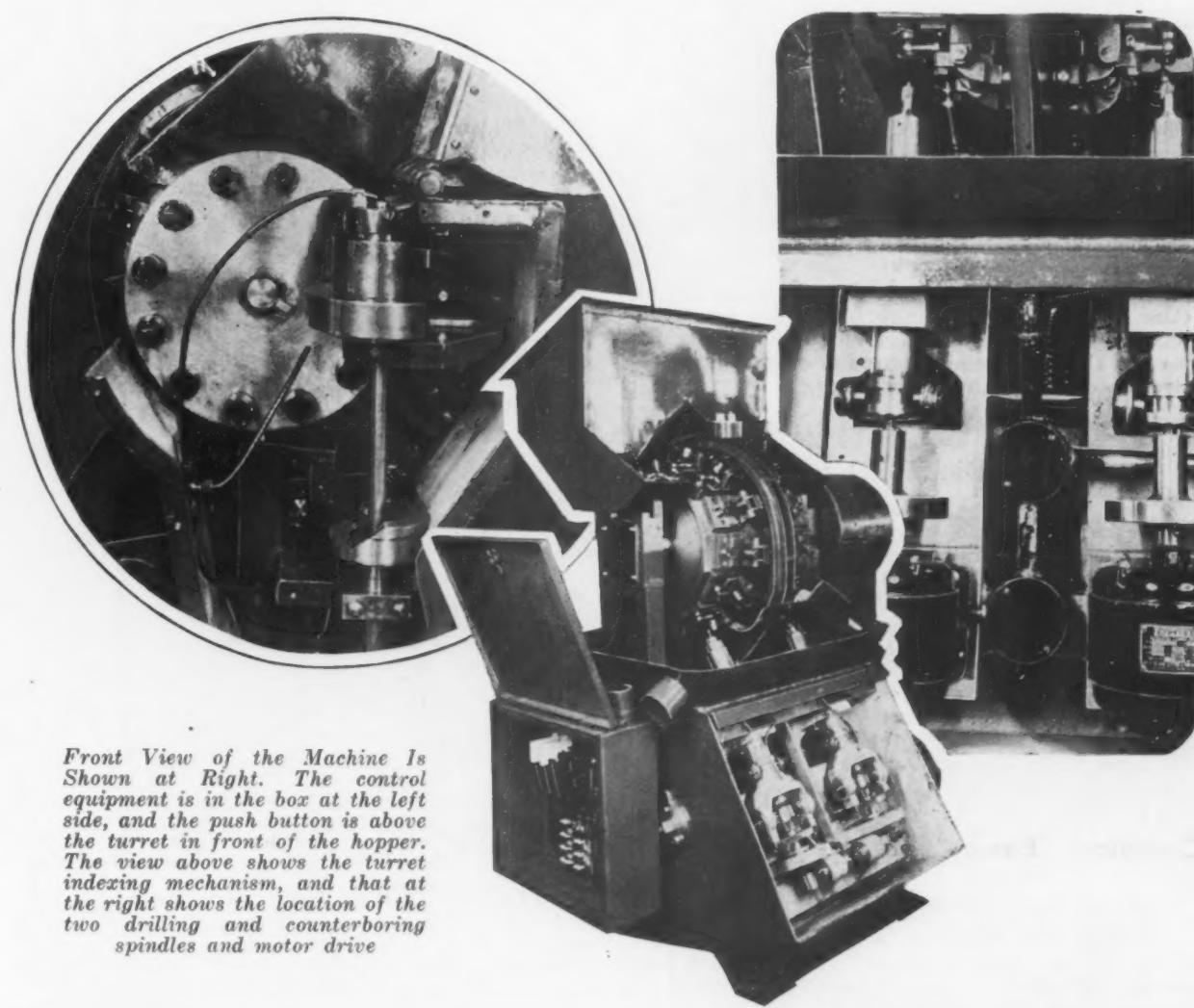
Marked savings in production costs are claimed for the semi-automatic machine illustrated, which is shown toolled up to drill, counterbore and tap the ball of the plug of gas stove cocks, to take the porcelain handle. This part is made from yellow rod brass and a production of 42 pieces per min. is claimed. The machine was developed by the Luehrs Co., Cleveland, industrial engineers and builders of special machinery, and can be toolled to do various other machining operations on iron and steel, brass and aluminum parts.

The machine is provided with two independent motor-driven drill spindles, two tapping spindles and a 12-sided turret revolving upon a horizontal axis. The

then reseated, holding the turret firmly while the tools are operating.

Each jig is provided with a hardened V block to take the cylindrical end of the plug and a hardened cup to take the ball. The cup and Vee locate the work and a hardened steel block beveled to match the taper of the end threaded $\frac{1}{8}$ in. gas pipe thread provides the third point of support.

It is important that the handle of the gas cock be exactly parallel to the gas hole in the plug and stand at right angles to the gas feed line when fully open. To assure this a pin is provided under the top end of the body directly opposite the pipe threaded end. This pin is held up by a spring. When the work is placed in the jig, the ball drops into the cup, the threaded end rests on the beveled block and the spring pin holds the cylindrical end up slightly out of the V block. The clamping of the work in the jig depresses the spring pin sufficiently to permit the cylindrical end



Front View of the Machine Is Shown at Right. The control equipment is in the box at the left side, and the push button is above the turret in front of the hopper. The view above shows the turret indexing mechanism, and that at the right shows the location of the two drilling and counterboring spindles and motor drive

turret carries 24 jigs for holding the work. The hopper above the turret is arranged to supply two feed chutes, one on either side of the turret. The operator stands directly in front of the machine with the turret turning away from him, and using both hands, he takes a piece from each feed chute and places it in the jig immediately opposite.

The turret is indexed by a continuously revolving single-thread screw operating upon pins secured to the face of the index plate, which in turn is keyed to the turret shaft. The main feed shaft revolves continuously and in addition to the turret turning screw carries a face cam operating a lever, which in turn operates the locking pin that seats in hardened and ground bushings in the periphery of the index plate. In operating the index pin is withdrawn during the time the turret is turning from one position to the next and

of the plug to seat in the V block, providing three points of support and proper alignment.

Turning of the turret past the feeding position causes the roller carried by the jig clamp to engage a hardened steel track and securely clamp the work. A spiral spring is interposed between the clamp arm carrying the roller that engages the track and the arm that actually engages the work. The tension on the spring is adjustable and in addition to assuring secure holding of the work, it is intended also to prevent excessive pressure which might distort the piece clamped or breaking of the jig in the event the piece is not properly placed. The turret advances the pair of jigs (one on each side of the clamp ring), past the drilling and counterboring spindles, then past the taps and then causes the roller to leave the clamping track and engage a pair of angle bars set back to back at the front

of the machine. The angle bars cause the clamping arms of the jig to open and release the work at a predetermined point, permitting the work to drop out of the jigs into the discharge chutes leading to tote boxes. The angle bars also serve to hold the jigs open.

A $\frac{1}{4}$ -hp., 3-phase, 60-cycle, 220-volt, 1800-r.p.m. ball bearing, Cleveland Electric motor is used for the main drive. This motor is mounted on a tripod bolted to the side of the machine, and transmits its power through a flexible coupling to the main drive shaft. Control of motor is by push-button, mounted conveniently in front of the operator, the push-button station starting and stopping the motor by means of a Thermaload starter. The main drive motor operates the two tapping spindles through bevel gears and the main cam shaft through worm and worm gear. The reciprocating motion of the drill and tapping spindles is obtained from a double faced cam operating a set of rocker arms. All working parts of the machine are inclosed and are flooded with oil from a $\frac{1}{2}$ in. Viking pump.

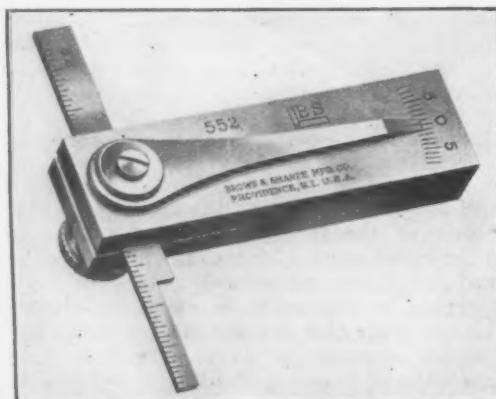
The drill spindles operate at 3600 r.p.m. Each spindle is driven by an independent $\frac{1}{4}$ -hp. Ohio Electric motor, controlled through snap switch. At 3600 r.p.m. the cutting speed of the counterbore is 410 ft. per min. The No. 17 drill penetrates $7/16$ in. Each motor carries a flywheel to supply the additional energy required when the counterbore is taking its maximum cut. The taps are $3/16$ in. stove bolt size and tap a full thread $\frac{1}{4}$ in. deep or to within $3/32$ in. of the bottom of the hole. They operate at 1800 r.p.m., and are driven by friction cones. The bearings of the tapping spindles are Arguto wood bushings. All others are S. K. F. ball bearings.

The almost entire absence of castings in the machine is stressed as a feature. The main frame, turret, drill and tapping sub-assemblies, oil guards, hopper and chip pan are all built up of electrically welded steel plate and structural bar.

Handy Die Maker's Square

Wide range of use is claimed for the die maker's square here illustrated, which may be used for establishing clearances of drop forging dies, drawing and forming dies and die castings, being also intended for use by pattern makers for checking drafts of patterns and by toolmakers as a square or depth gage or for establishing clearances. It is claimed to do more than the usual diemaker's square and easier to use and set.

The tool may be set conveniently at any angle within its capacity by simply moving the pointer to the correct graduation mark and tightening the knurled nut. The blade moves with the pointer. The narrow end of the blade is $7/64$ in. wide for small holes and the other end is $7/32$ in. wide. The graduations on the body read to 8 deg. either side of zero and the angle of clearance or draft setting is obtained direct, no protractor being



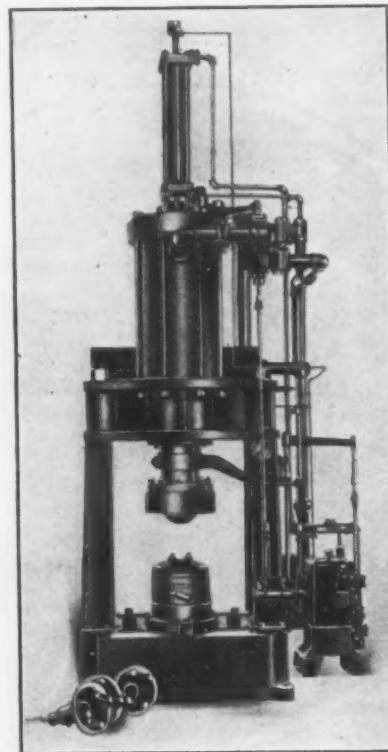
Die Maker's Square. The angle of clearance or draft setting is obtained direct

required. The body of the tool is hardened and ground. The device is a product of the Brown & Sharpe Mfg. Co., Providence, and is designated as No. 552.

High Production Claimed in Straightening Castings

High production in the straightening of malleable castings is claimed for the machine illustrated, which was designed to eliminate the breakage of castings in the weak sections and also to eliminate rejections on account of incomplete straightening.

In truing malleable brake bands one of these machines of 50-ton capacity is claimed to have increased production 50 per cent, eliminated four men formerly required, and to have eliminated rejections due to incomplete straightening. The dies are made so that the bands are brought to a true circle and made to lie flat on one edge in one operation. In another plant employing a 100-ton press, rear carrier housings are said to be straightened at the rate of 250 pieces an hour.



Press for Rapid Straightening of Malleable Castings. Rejections because of incomplete straightening are said to be eliminated

These castings weigh 27 lb. each, and two operators run the press, which is equipped with double dies.

The machine is a recent development of the Oilgear Co., Milwaukee, and operation is by means of a smooth flow of oil through a hydraulic cylinder under fine control. The castings are said to be subjected to a quick squeeze rather than a sudden blow, giving the metal time to flow into the desired shape, the castings retaining the proper shape instead of springing back.

The press is equipped with a high-speed cylinder for advancing and withdrawing the ram to and from the work rapidly, an arrangement intended to reduce the time required for traversing the ram through the loading space. The squeeze is accomplished by a large cylinder. The flow of oil from the pump to the press is controlled by a single foot pedal which permits operator the use of both hands. As the dies come into contact with the work, the flow of oil from the high speed traversing cylinder to the large squeezing cylinder is shifted automatically by means of a valve. When the casting has been straightened, the ram is returned quickly to its upper position by the small cylinder. The control mechanism is equipped with adjustable stops so that the ram may be stopped at any point in its stroke. The travel of the ram is never more than enough to clear the work and to permit loading and unloading of the die. In using double dies, one die is loaded while the ram is operating on the other. In this

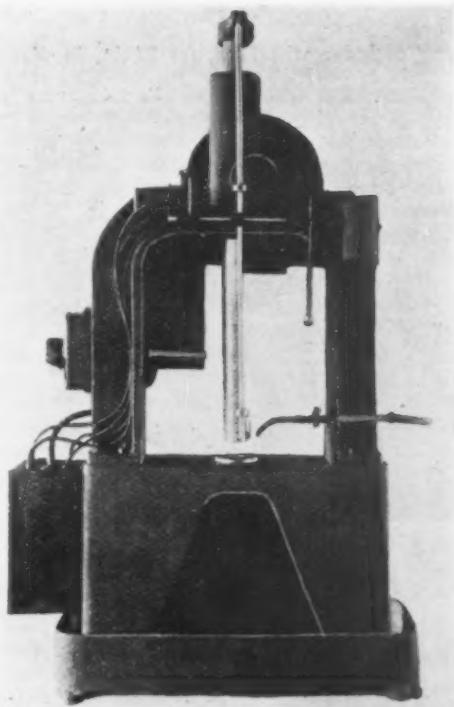
way the ram need operate over only a short stroke as loading and unloading takes place at one side. An extra cylinder and valve, placed convenient to the operator, may be used to shift one die out from under the ram and set the other die in place.

In operating, the casting to be straightened is placed in the lower die and the foot pedal pressed until the ram squeezes the work. The foot pedal is then released, which causes the ram to return to the starting position at high speed. The machine is available in two sizes.

Vertical Broaching Machine

A new vertical broaching machine with a 30 in. stroke and an opening between upright members sufficiently wide to take in work up to 30 in. and having a capacity of 20 tons pressure has been brought out by the American Broach & Machine Co., Ann Arbor, Mich. The machine is operated by means of a rack and hardened pinion. The bottom of the ram is fitted to receive a standard connecting bushing. The ram has one flat side which is cut with rack teeth of three pitch. The pinion engaging the rack is driven by an 18-in. bronze worm gear, which in turn is driven by a hardened worm provided with roller bearing to receive the end thrust. The speed of the ram is 16 ft. per min., but a slower speed can be provided if desired by changing the ratio of the driving sprockets. The ram is 4½ in. in diameter and the hole in the table 5 in. in diameter.

The machine on being started makes a complete stroke. When the control lever is thrown into the engaged position for the downward or cutting stroke the machine pushes the broach down through the work and trips automatically at the end of the stroke when it comes in contact with the stock. It then reverses and returns to the starting position ready for the next stroke. It is controlled so that the stroke in either



*Broaching Machine of 20-Ton Capacity.
The stroke is 30 in., and space between
housings 30 in.*

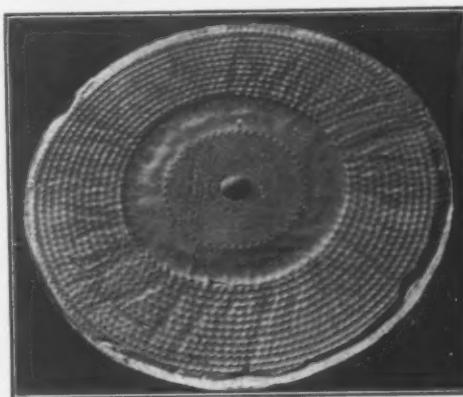
direction can be stopped at any time by a slight movement of the controlling lever.

The only drive furnished is by means of a 7½-hp. motor operating at about 750 r.p.m. through a silent chain. The motor is controlled by a panel, reverse switch and limit switch. The machine occupies a floor space 5 ft. square and weighs 4000 lb. It is fitted with an oil pump.

New Type of Sewed Buff

A new sewed buff known as the Biasplex and incorporating the principle of the bias buff described in THE IRON AGE of Jan. 29, but with modifications desirable in a full-sewed wheel, has been brought out by the Bias Buff & Wheel Co., 342 Madison Avenue, New York. It is for use on work on which a pieced buff or a whole layer-sewed buff is used, and is made 30-ply in either bleached or unbleached sheeting, the unbleached being recommended for most work.

Five sections of the Biasplex buff are said to make a 2½ in. face. Accurate balance, uniform quality and weight, and longer life than the former type of sewed



Sewed Buff Incorporating "Bias Buff" Principle. Five sections make a 2½-in. face

buff, are claimed. The material used in the buff is manufactured at the company's mills.

Progress in Welded Rail Joints Reported

A wealth of information on welded rail joints is contained in the third progress report recently submitted by the welded rail joint committee of the American Bureau of Welding, of which Dr. G. K. Burgess, director of the Bureau of Standards, Washington, is chairman. The street railroad industry, it should be pointed out, is one of the largest users of welding, and the work of the committee is intended to pave the way for improvements that will increase the life of joints, and thereby permit of large savings annually by the street railways.

Progress report No. 3 includes findings of the committee, test data and other material obtained since the publication of the previous progress report, No. 2, during March, 1924. Data on tensile tests made by the Bureau of Standards include stress-strain curves and illustrations of various joints broken by tensile test. Bend tests are reported on by Purdue University and drop tests by the University of Illinois. The report of the Bureau of Standards on the repeated impact tests is given in several pages. A brief history of the proposed rotary machine for testing rail joints is given as well as descriptions of telemeter and orthograph tests and a report on the contact pyrometer developed by the Bureau of Standards for determining the temperature of the rails during preheating and post heating.

A report on metallographic examination of typical welded rail joints by the Bureau of Standards is illustrated by many micrographs, and several pages are devoted to a report on the examination of sections from welded rail joints, made by the Union Carbide and Carbon Research Laboratories, Long Island City, N. Y. The program of the investigations of the welded rail joint committee is outlined and extracts from the American Welding Society's Bulletin No. 1 on "Standards for Testing Welds" are given. A report of the sub-committee on inspection of fractured joints is among other material in the progress report, which is published in the May issue of the *Journal of the American Welding Society*. Copies of the report may be obtained from W. Spraggen, secretary of the American Bureau of Welding, 33 West Thirty-ninth Street, New York.

SINGLE PURPOSE BORER

Machine for Boring and Reaming Pinion Holes in Differential Housings

Boring and reaming the three holes which carry the pinions in automobile differential housings is the function of the special single purpose machine shown in the accompanying illustration, which was built recently by the Pratt & Whitney Co. of Hartford. The machine was developed for obtaining rapid production on this operation and is suitable for several sizes of work.

The machine consists of a large angular bed upon which are mounted two separate boring head units, each having its own motor drive. These two units are placed at an angle of 120 deg. to each other, with the work indexing fixture at the apex of the angle, an arrangement intended to maintain the correct boring angle between the two spindles. The operation is continuous, as one spindle is boring while the other is reaming. Massive construction is the feature of the bed.

The two heads are practically identical, except that they are left and right hand respectively. A long spindle quill is mounted in heavy bearings and a rack on the under side of the quill engages the hand-wheel pinion for moving the spindle quill by hand. A 1½ hp., 1150 r.p.m. motor is mounted on top of the head and geared directly to the spindle and to the power feed driving shaft. The power feed is connected to the spindle through a Johnson friction clutch operated by a convenient lever just behind the large hand-wheel. The boring bar is mounted in the usual manner in the spindle nose.

The left-hand head is used for boring and the right-hand for reaming. The left-hand head is geared to give a boring speed of 350 r.p.m. with a power feed of 0.01 in., per revolution of the spindle; the right-hand head having a speed of 150 r.p.m. with feed of 0.06 in. per revolution of the spindle. Different speeds and feeds may be had by changing the gears in the two gear boxes. The oiling of the heads is by means of sight-

feed oil cups, and the gear boxes are lubricated from a large reservoir in the top of each box.

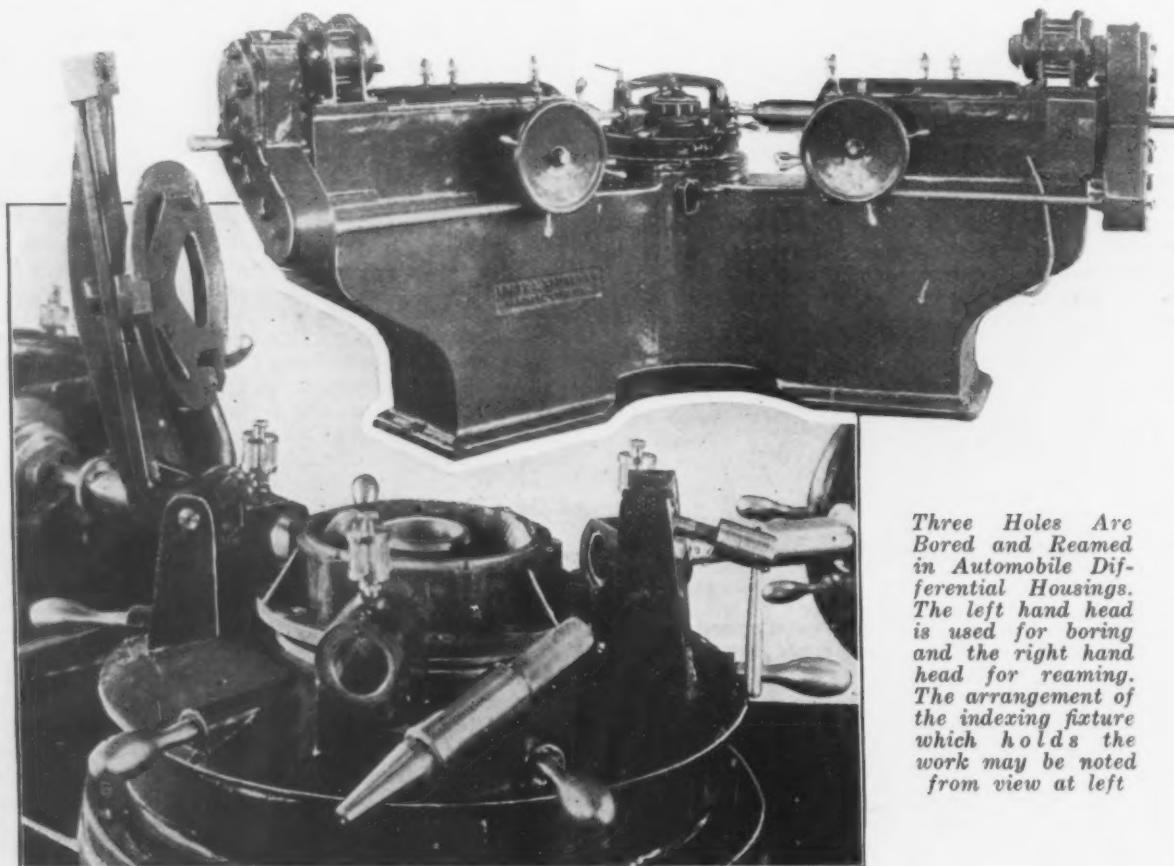
The arrangement of the indexing fixture which holds the work may be noted from the close-up illustration. The work casting is held in place by an overarm which clamps down on top with a convenient binder. Three hardened steel shoes on the underside of the holding plate are removable, and various sets are provided for the different sizes of castings to be bored. These shoes and the adapter plates are the only changes necessary to accommodate the various sizes of work.

The table is indexed by hand and is provided with a locating pin operated by the lever projecting through the bed itself. A binder which consists of a split sleeve, extending around the table, holds it tightly in position when boring. This binder has a taper inside surface, which forces the table down tightly against the bed, an arrangement intended to hold the work accurately in place against the locating surface. Floating bushings on the boring and reaming bars, fit into the guide holes on the upper surface of the table and form supports for the bars. These holes also provide a means for locating the work by using the taper locating pin shown. This pin is tapered to accommodate holes from $\frac{3}{4}$ to $1\frac{1}{2}$ in. in diameter, which is the ranges of sizes for which the machine is made.

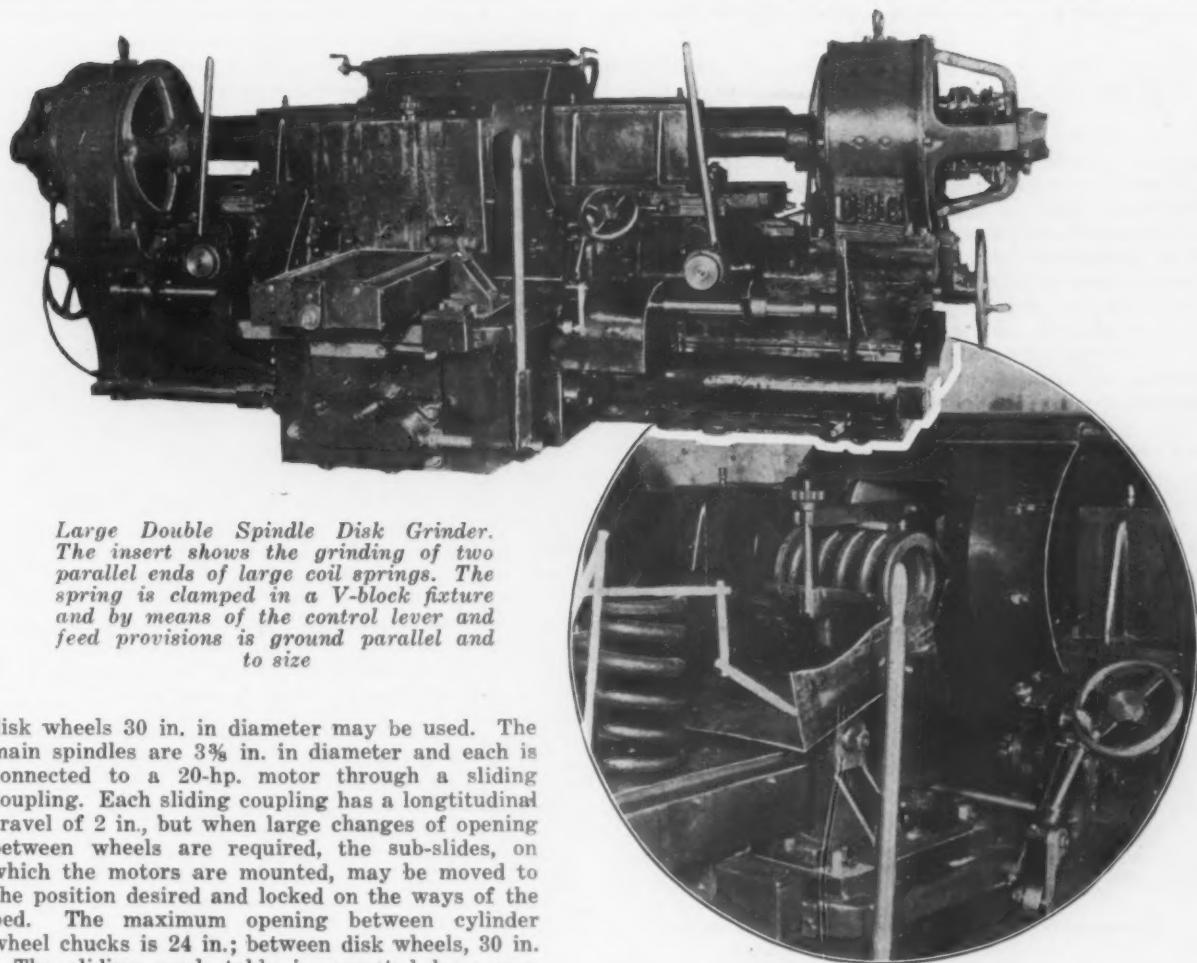
Large Disk Grinder

A large disk grinding machine, one view of which is shown herewith grinding the parallel ends of long coil springs, which are made of $1\frac{1}{4}$ in. stock and are 10 in. in diameter and 17 in. long, has been added to the line of the Badger Tool Co., Beloit, Wis. The machine is designated as No. 224 and is claimed to be the largest of its type to be built as a regular part of a line, except on special order. The same grinding principles are employed as in the company's double spindle units, but the increased dimensions are stressed as permitting the grinding of larger areas than considered practical heretofore.

Either cylinder wheel chucks 24 in. in diameter or



Three Holes Are Bored and Reamed in Automobile Differential Housings. The left hand head is used for boring and the right hand head for reaming. The arrangement of the indexing fixture which holds the work may be noted from view at left



Large Double Spindle Disk Grinder. The insert shows the grinding of two parallel ends of large coil springs. The spring is clamped in a V-block fixture and by means of the control lever and feed provisions is ground parallel and to size

disk wheels 30 in. in diameter may be used. The main spindles are 3½ in. in diameter and each is connected to a 20-hp. motor through a sliding coupling. Each sliding coupling has a longitudinal travel of 2 in., but when large changes of opening between wheels are required, the sub-slides, on which the motors are mounted, may be moved to the position desired and locked on the ways of the bed. The maximum opening between cylinder wheel chucks is 24 in.; between disk wheels, 30 in.

The sliding work table is operated by power through reduction gears and a separate 3-hp. motor located at the right-hand end of the machine. The work to be ground is placed in a fixture attached to the inner end of the work table, which reciprocates slowly in between the grinding wheels, when the control lever is in the forward position. When the control lever is thrown back, the work table comes out from between the wheels and stops, in which position the holding fixture is loaded. A neutral position is provided also for the control lever. The grinding heads are opened and closed by power in proper relation to the cross-travel of the table. Suitable micrometer stop screws are provided to act independently on each grinding head. There is also a ratchet feed which permits the heads to come together one or more thousandths for each cycle of the work table. A wheel dressing device is attached to the rear of the machine and wheels may be dressed while the work is being ground. The machine is available with both belt and motor drive and is arranged for either wet or dry grinding. It is 15 ft. long by 7 ft. wide and weighs 14,000 lb.

One-Half Inch Threading Machine

A new ½-in. single-head threading machine, with geared headstock and single pulley drive has been added to the line of the Landis Machine Co., Waynesboro, Pa. Four speed changes, giving 157, 226, 315 and 441 r.p.m., are provided for the die head. The die head is opened and closed automatically at predetermined limits by the carriage, or by hand. The vise has a horizontal side-wise as well as a vertical centering adjustment, which is stressed as assuring permanent alignment with the die and is claimed to be an exclusive feature. Cooling lubricant is supplied at the die head by means of a rotary pump, and a special control valve is provided at the die head for shutting off the oil supply when necessary.

The main spindle bearings are of bronze. The frame is cast in one piece. The driving pulley is mounted on top of the machine as shown, and change from belt to

motor drive may be made conveniently. Power is transmitted from the motor to the drive shaft of the machine by means of a belt. The motor is mounted on a plate at the top of the headstock, an arrangement stressed as economizing floor space and preventing dirt and oil from accumulating on the motor parts.

The machine employs the company's all-steel rotary die head and long-life chaser. The floor space occupied is 4 ft. 1½ in. x 1 ft. 11½ in., and the weight is 950 lb. net.



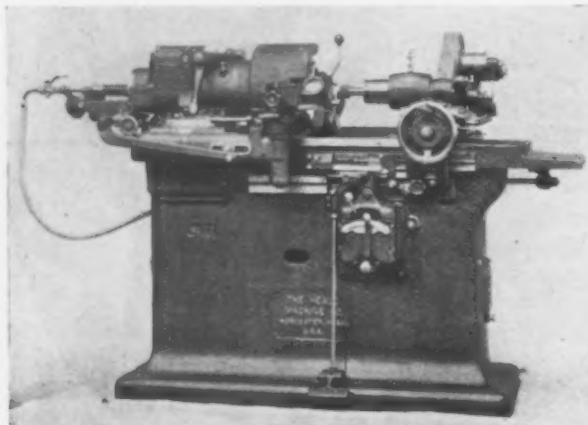
Single Head Threading Machine of ½ In. Capacity, Geared Headstock and Single Pulley Drive

NEW HEALD GRINDER

Sizing Control Unit and Hydraulic Table Drive Are Features of High Production Machine

A size indicating and controlling device is an outstanding improvement in the semi-automatic internal grinding machine illustrated, which is being offered by the Heald Machine Co., Worcester, for high production of repetition work. It will swing 15 in. and grind holes 6 in. in diameter by 6 in. deep. The swing inside of the water guard is 12 in. There are five work speeds ranging from 119 to 475 r.p.m. and the table speeds range from 0 to 50 ft. per min. in any increment desired.

Revolving parts are mounted in ball bearings, requiring no adjustment. The table is driven by a hydraulic arrangement operated by oil under constant



Internal Grinder with Sizing Control Feature

pressure, providing simple control of speeds through the entire range or direction of travel at all times. Gears, clutches and other parts are eliminated. The loading is done from the front with the wheel cutting on the far side of the hole in plain view of the operator.

Practically every unit of the machine is controlled automatically. After the work has been chucked and the machine started, the wheelhead advances at full speed, automatically slowing down to grinding speed as the wheel enters the hole. With the coarse feed, the wheel roughs the hole to approximately finished size as set on the indicator, after which the operator lifts a latch controlling the third dog, which short-strokes the table just enough to permit the diamond to drop into place, truing the wheel as it reenters the hole for the finish cut. This gives a true, clean and sharp wheel which, together with the automatic change to fine feed is stressed as resulting in a true, round hole without bell mouth. When the hole is ground to finish size, the operator steps on the treadle which causes the wheelhead to withdraw at full speed to the rest position. The work and water stop automatically, and a guard drops over the wheel.

The sizing control unit is bolted to the bridge of the machine. It has a diamond pointed finger that is in contact with the hole in the work being ground, but which automatically swings out of the way as the table withdraws to the rest position allowing for quick removal and chucking of work. The position of the sizing unit may be adjusted for various size holes, and may be swung out of the way to permit of truing up a new wheel or grinding a master hole.

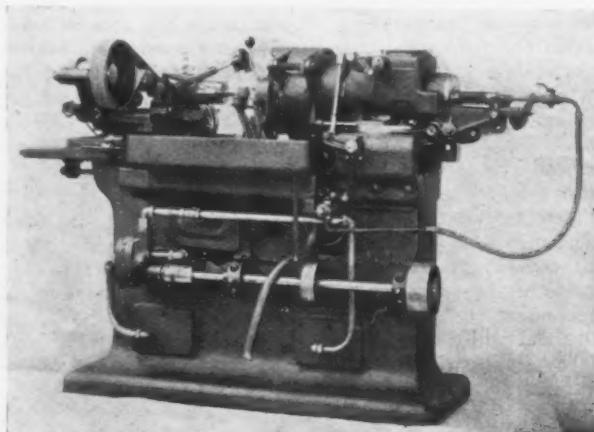
The workhead is made up of a heavy casting mounted on a rigid bridge which, in turn, is securely bolted directly to the base. The work spindle is of high carbon steel with a large diameter flange which is said to assist materially in lining up chucks or holding fixtures. The spindle runs in large, self-adjusting, radial ball bearings. A lever engaging a cone type clutch on the inside of the spindle drive pulley starts and stops the work and water supply instantly. A large supply of

water is carried through the spindle, thus assuring even temperature of the work at all times. Provision is made through the work spindle for a collet operating tube which can be adapted to operate draw-in collets or special holding fixtures either of draw-back or push-forward type.

In truing a new wheel, the operator must necessarily run his cross slide back to get position. Also, it is desirable to have a maximum size wheel for the hole. To assist him, the cross slide is arranged with a simple and convenient stop which indicates to the operator that he has trued the wheel down to the largest size possible to enter the hole and it also gives him the correct position of the cross slide relative to the work so that he can start grinding immediately. The wheel truing device dresses the wheel just before finished size is reached. A cam on the table controls the movement of this operation so that it can only be brought down into position at the proper time. After the wheel has been trued the diamond is raised up out of the way automatically.

The main table travels on a flat and "V" way and is of sufficient length to protect them from all grit and dirt. The table is driven by a simple hydraulic arrangement as mentioned above. Change of speed is obtained by a throttle control of the oil supply giving the operator an unlimited number of speeds up to the maximum, which is often desirable for finish or production. Reversal is accomplished by moving the ball handle lever in the direction toward which movement of the table is desired and can be accomplished at any point of travel. The stroke of the table is controlled by three adjustable dogs, two of which are set for the grinding stroke. The third, a sliding member, permits the table to withdraw sufficiently so that the wheel will pass the diamond during the truing operation, after which it returns to the grinding stroke. Micrometer adjustment of the dogs can be obtained by slight turning of the worms along the rack cut in the dog bar. Provision is also made for quick rough adjustment by withdrawing worms from the rack teeth so they are free to slide to the position desired.

Wheelheads of various sizes can be furnished, which



The Rear Shaft, Which Drives the Oil and Water Pump, Is Mounted in Ball Bearings. The pump is of gear type and is built by the Heald company

permits the use of the proper size spindle or quill for each particular job. These wheelheads are quickly interchangeable. The floor space required for the machine is 50 x 96 in. The weight is 5500 lb.

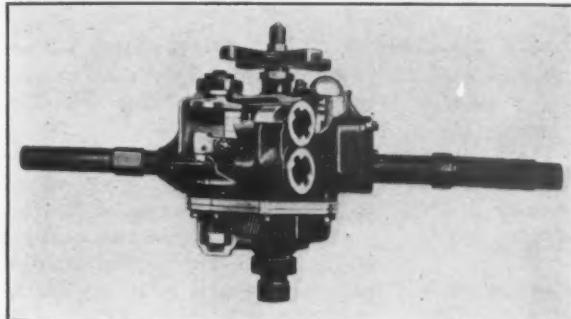
Pneumatic Drills with Speed Governors

The incorporation of a speed governor to prevent racing is one of the features of a new design of four-cylinder, long-stroke pneumatic drill being placed on the market by the Ingersoll-Rand Co., 11 Broadway, New York. A complete line of the new machines is available, in both reversible and non-reversible sizes.

The speed governor is intended to limit the speed

of the drill after it has passed the point of maximum horsepower, and so prevents racing and consumption of extra air. It is claimed to avoid the wear and tear on the drill of high free speeds, excessive friction heat and burning of the lubrication, and avoids burning of taps and reamers.

Renewable cylinder liners are provided, these being of special steel, fitted into the steel casing, and conveniently removed and replaced. It is said to be practically impossible to dent a cylinder and cause sticking



Speed Governor Prevents Racing and Saves Air

of a piston, this being prevented by a space between the liner and the cylinder case walls. The cylinder liners are held in place by cylinder heads, which screw into the liner and shoulder against the case. The threads are in the liner rather than in the case, so that stripped threads necessitate only a new cylinder liner. Crank pins are fitted with a sleeve held stationary on the crank pin, the wear taking place on the sleeve instead of the crank pin. Lubrication of the crank pin is from the inside as well as from the outside, centrifugal force throwing the grease continuously into the crank pin bearing from the inside. It is claimed that, with lubrication from outside only, the centrifugal force tends to keep the grease away from the crank pin.

The main valve is of large diameter, with long bearing surfaces, and is air balanced to avoid wear in its bushing. It is gear timed, toggles, levers and cranks being eliminated. The use of helical type gearing is a new feature, and the crank pinion is renewable independently of the crank. Connecting rods are of one-piece drop forgings, and the crank shaft construction permits the use of solid-end connecting rods and renewable crank pin sleeves. The complete crank shaft with pistons and connecting rods can be assembled outside of the case and then inserted in place, which is stressed as a time and labor saving feature, as well as assuring proper assembly.

Crushing Attachment for Use with Alligator Shears

A feeding and crushing attachment for alligator or lever shears has been developed by Doelger & Kirsten, Milwaukee, manufacturer of alligator shears. The attachment is used for crushing and feeding tubing up to approximately 3 in. in diameter, such as is utilized in metal beds. The driving gears of the attachment

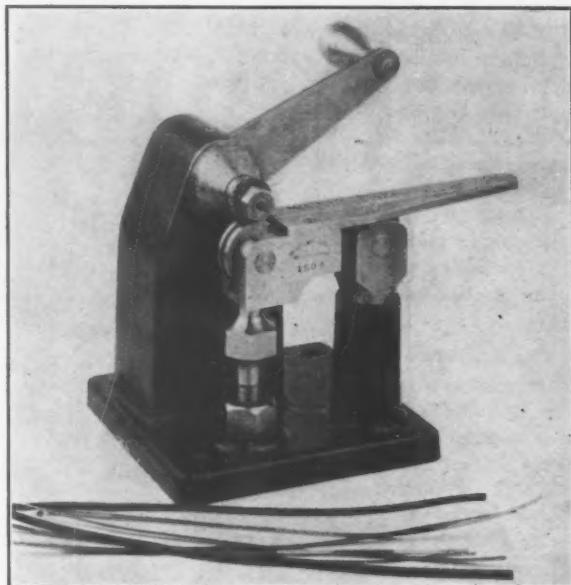
Tubing up to 3 in. in diameter is crushed and fed automatically to the shears. Three times as much tubing can be loaded in a car after it has been crushed

are connected with the shear as shown in the illustration, so that both the shear and attachment are operated by a single 5-hp. motor. The crushing rolls are self-adjustable, permitting the crushing device to handle various diameters and sizes. All that is required of the operator is to feed the material into the trough of the attachment irrespective of the diameter or shape of the material. The tubing is crushed and automatically fed to the shear, making for economy in labor. The device is of particular interest to scrap yards, and it is estimated that three times as much tubing can be loaded in a car after it has been crushed. The company also expects to develop a similar attachment for crushing and feeding pipe.

Bench Machine for Marking Strip Stock

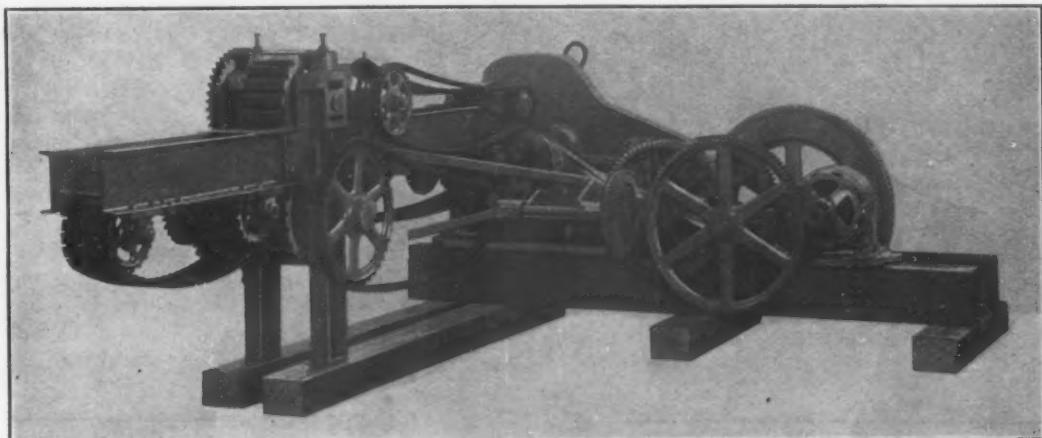
The marking of gold solder requiring a continuous mark to designate quality led to the development by the Noble & Westbrook Mfg. Co., Hartford, of the bench machine illustrated, which will mark any metal in the form of strips, either round or flat. Material $\frac{1}{8}$ in. wide is fed through the machine and rapid operation is a feature.

The marking is by means of two rolls, the top roll being lettered and the bottom one being grooved to



Machine for Continuous Lettering of Strips

carry the stock central. The crank handle is placed at the back of machine and through gears that are placed in the casting, speeds up the action of the roll two to one. Provision is made for marking different thicknesses of stock and the machine can be adapted to mark a continuous line of lettering up to 5-32 in. long on stock $\frac{1}{8}$ in. wide or smaller. The weight of the machine is 10 lb. A heavier, power-driven machine of similar design for marking $\frac{1}{4}$ in. and $\frac{5}{8}$ in. copper tubing has also been developed by the company.



Fuel Prices Low: Upturn May Be Near

No Great Change Can Be Expected Until Fall Contract Buying Strengthens Market

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY SCHOOL OF BUSINESS RESEARCH

HAND to mouth buying is much in evidence in the coal trade and, more than ever, the production figures are practically the same as consumption. Trade reports indicate that relatively little coal is being shipped on consignment. The production of bituminous coal has been running between 8 and 8½ million tons weekly. Probably if coal stocks were normal the statement would be justified that production is about normal. Certainly it does not seem to be excessive,

Stocks of bituminous coal held by industries, however, are very low—below the stocks which existed at the end of 1922 and in early 1923. The National Association of Purchasing Agents reports a total of 39,317,000 tons which is only about 40 days supply. So low a figure for stocks makes it seem all the clearer that production is not in excess of normal requirements.

The *Coal Age* composite price of bituminous coal averaged \$1.97 in May against \$1.955 in April. The price sagged off a little further during June, and in the week of June 22 averaged \$1.95. The price is now about where it was last July. During the whole period of nearly a year since that time it has varied relatively little.

The "domestic" demand for bituminous coal is subnormal.

Screenings, however, are rather firm, as the railroad and steel demand is fairly good and utilities are reported to be buying their normal quantity. At the head of the Lakes better conditions exist owing to some improvement in demand on the part of iron mines and factories.

With stocks so low and prices at or near the bottom, it seems that any considerable change in coal values must be upward. The present situation, however, is likely to

since January. The May output, however, was larger than that of the same month a year ago (Fig. 2).

The price of furnace coke is now down to the bottom levels of the year 1924, the average for May being \$3. This represents a slight decline from April. The price of coke, however, is relatively higher than that of bituminous coal. This is true in comparison both with past prices and with the rate of production. It would seem logical,

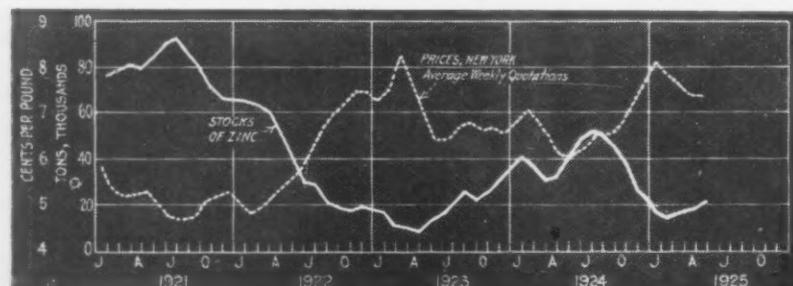


Fig. 3—The Supply of Zinc Is Ample and There Appears to Be No Reason for Any Advance in Prices at This Time

drag on until the outlook for fall business is more certain.

THE production of beehive and by-product coke in May declined and reached the lowest point of the year. The trend of coke production has been downward now

therefore, to find the coke markets somewhat weaker than in the case of coal.

In this connection attention may be called to the sale by a Youngstown steel company of by-product coke in competition with the Connellsburg product, as it indicates the existing low level of demand.

No strength is likely to appear in the coke market until the production of this commodity has been curtailed somewhat further.

AS shown in Fig. 3, stocks of zinc have been increasing. At present they are about the same as in December last year. At first glance, the level of stocks does not seem too high. Two factors, however, indicate that stocks are relatively large. In the first place, world stocks have increased steadily in recent months, suggesting a small export demand. In the second place, the number of retorts active is being maintained at a high level, only a little below that of the peak reached in 1923.

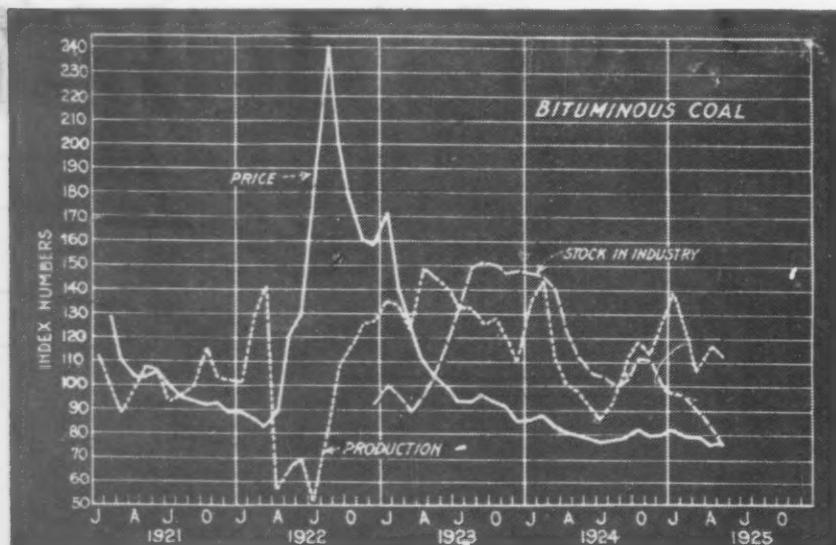


Fig. 1—Unusually Low Stocks of Bituminous Coal Indicate That an Upturn in Prices May Not Be Far Distant

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Better distribution methods not synonymous with high-pressure selling.—Economies possible by means of better selling, but improved production methods not exhausted as yet.—Page 22.

How modern equipment lowers cleaning room costs.—Less handling required, faster cleaning and lower proportion of defective castings.—Page 1.

Fuel prices low; upturn may be near.—Low supply of bituminous coal indicates bottom of market has been reached. Coke demand still dull.—Page 18.

Metal lath and wire fence makers use simplification tags as quality brand.—Other manufacturers can employ same selling argument.—Page 5.

New specifications proposed for ferroalloys.—Also for silicon structural steel, carbon steel castings for high temperature work and alloy steel bolting material.—Page 26.

How Milwaukee metal trades sort out misfits in industry.—Before they can lose money for themselves or their employer.—Page 28.

Every new idea that leads to the production of an automobile or a sewing machine or a vacuum cleaner at less cost is a force moving toward a better plane of living.

Consequently THE IRON AGE feels a just pride in the presentation of articles that tell how to do this thing—to make better or cheaper goods.

This is but a part of the responsibility THE IRON AGE feels toward you, its reader. It is constantly working to prevent the needless outlay of money in manufacturing and in buying and selling. And so in each issue we present up-to-date surveys of business conditions as they affect you, in the belief that sound judgment, based upon facts, will result in increased productivity and in other economic gains. The regular weekly forecasts by Dr. Lewis H. Haney are intended to meet this need; also in line with this purpose is the special price analysis on page 8 of this issue.

High capacity tandem blooming mill.—Continuous type with multiple stands in Illinois Steel Co. plant.—Page 6.

Suggest export bonus in place of import duty to protect German steel interests.—Increasing competition alarms German producers.—Page 31.

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Financial crisis in Stinnes concern may affect other interests.—German iron and steel industry in confusion as result of financial stress in giant combine.—Page 31.

June pig iron output 6 per cent less than May on daily basis.—Net loss of only five furnaces, indicated by telegraphic advices, points to approach of stabilization.—Page 33.

Iron and steel exports hold at good level.—May about equal to April and March, while imports show loss.—Page 54.

Average output of blast furnaces close to high record in March and April.—Output per furnace increases more rapidly than does total production.—Page 24.

Extensive tests being made to determine facts on corrosion.—Expected to determine relative life of various irons and steels as base metals.—Pages 23, 27.

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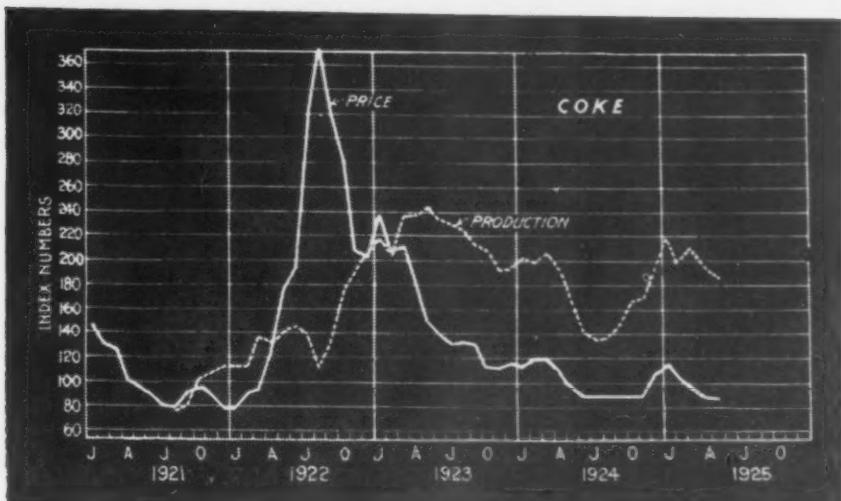


Fig. 2—Coke Prices Have Not Been So Low for Three Years but the Market Dullness Does Not Indicate Any Immediate Change

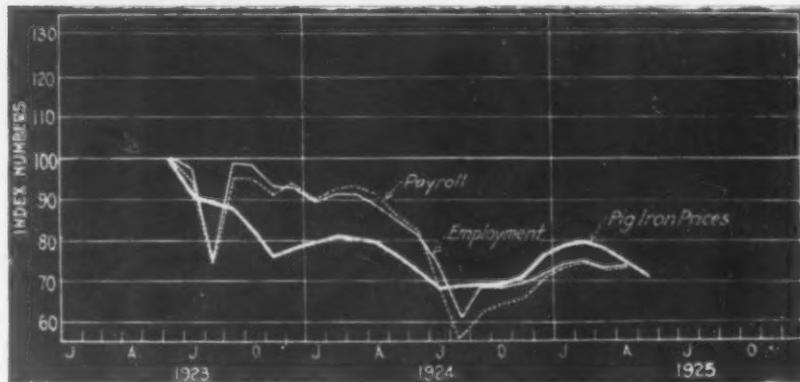
Fig. 4—Machine Tool Builders Have Been More Active Than During the Last Half of 1924

The price of zinc at New York as quoted in *THE IRON AGE* averaged 7.32 cents in May, which is but little change from April. The zinc market, in fact, has been very stable.

It seems fair to conclude that: (1) the supply of zinc is ample; (2) the demand is fairly good; (3) the price is not likely to change much in the near future, but there is no indication of an advancing market.

Machine Tool Industry Is Stabilized

EMPLOYMENT and payrolls in the machine tool industry have recently changed but little. Compared with a year ago, this branch of the iron and steel industry shows decreased activity, both employment and payrolls being about 15 per cent less. The figures, however, indicate considerable im-



provement from the middle of last year when the industry reached its lowest point.

Frequently the trend of pig iron prices anticipates the trend of the machine tool industry, but there has yet been no appreciable showing of this tendency in recent months. The worst that now seems likely is that the May and

June figures will show a little sagging in machine tool activity, thus conforming to the decline in pig iron.

But as the turn in iron prices now seems likely to occur before summer is over, it is quite probable that the machine tool industry will show increased activity by fall.

The Iron Age, July 2, 1925

SHIPBUILDING WAGES

Why Germany Is Underbidding British Shipyards

In attempting to account for the capture of British ship orders by German shipyards, an article in a recent number of *Engineer*, London, quotes a schedule of weekly wages of crafts in the shipbuilding industry prepared by the New York and New Jersey Dry Dock Association. This schedule is given in the table. Mention is made of the longer week of work in Germany—54 hr. against 47 hr. in Great Britain—and of the much lower cost of foods and other necessities of life which permits the German employee to accept wages so far below those of his competitors.

Much is made of the fact of the different labor union conditions in the two countries. In Great Britain there are "40 or 50 separate labor unions in the shipbuilding and engineering industries, with the workers organized in watertight compartments, involving frequent and costly demarkation disputes. In Holland, Germany and other continental countries there are simply metal workers' unions and wood workers' unions, meaning that there is no squabbling about which man is to do a particular piece of metal or wood work."

Other items referred to include the ability of the unskilled man on the Continent to move up into the

semi-skilled grade, without having first served an apprenticeship, whenever his abilities permit. The same is true in moving from semi-skilled to skilled classifications. "Continental mechanics do not expect so many laborers to wait upon them as British skilled men insist upon. All these points add to the disparity between British and continental costs."

Weekly Wages in Shipbuilding:

Craft	Great Britain	Holland	Germany	United States
Boilermakers	\$20.45	\$14.28	\$8.10	\$34.56
Smiths	16.22	14.52	8.10	40.28
Machinists	16.22	14.52	8.10	34.56
Carpenters	16.22	15.24	8.10	34.56
Patternmakers	19.04	16.19	8.10	38.40
Joiners	16.22	14.28	8.10	34.56
Electricians	16.22	15.00	8.10	34.56
Laborers	12.69	12.38	6.48	23.00
Average	16.66	14.55	7.90	34.31
Ratio	100	87	47 1/2	206

May Payrolls in Iron and Steel Plants

Iron and steel plants to the number of 219 had 282,175 names on the payroll in May, compared with 288,679 in April, according to figures of the Bureau of Labor Statistics. The reduction was 2.3 per cent. The total payroll in one week in May was \$8,577,898, or an average of \$30.40 per employee. This compares with the payroll in April, amounting to \$8,741,796, or an average of \$30.28 per employee. The reduction in total amount of payroll was 1.9 per cent.

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Buyers Prefer Steady Prices

COMMENT is being made that buyers of steel are not particularly pleased by recent price declines, and in one steel line that has been marked by repeated declines there is a decided feeling of dissatisfaction. The attitude may be considered in connection with that shown last February, when there was opposition to price advances. Reference to that spirit was made in THE IRON AGE of Feb. 26 last. Now, with the steel market trending the other way, there has been displeasure at both advances and declines, within the space of six months.

What the typical manufacturing buyer of steel prefers is steady prices. It is not merely a matter of convenience, the saving of trouble. The buyer feels that steadiness in steel prices conduces to continued and steady demand, which makes for economy in production and distribution.

The fact that the average buyer seeks to buy at the lowest possible price he can develop at the time of buying is no argument that he does not prefer uniform and steady prices. Naturally, if there are concessions going he wants to get the benefit of them, and if possible a little more benefit than any of his competitors.

In the long term price swings that used to occur before the war, occupying roughly speaking two or three years for the round trip, it was a notable fact, much commented on, that relatively little steel was bought at the extreme low or the extreme high prices. Thus low prices did not benefit buyers, nor did high prices benefit sellers, to the extent that would be expected merely from a scrutiny of the price curve.

Cases are relatively infrequent in which the buyer of steel claims he must have a certain price in order to get business in his finished product. As a rule the things made from steel fluctuate less in price than does the steel. In cases in which there are fluctuations, the manufacturing consumer is likely to feel that a reduction in steel is calculated to create a fresh disturbance in his market.

In nearly all cases declines in steel prices are caused by the sellers rather than the buyers.

Generally, it has been much the same with advances, except in 1920 when many of the advances were brought about by the bidding of consumers, particularly and notably in the case of the automobile trade.

To say that the price declines of the past few months have been brought about by the mills is not necessarily to prove that the mills have followed a weak policy in selling. There was eager and strenuous competition for orders and in the circumstances the declines, with, of course, the notable exception of the sheet market, are not an indication that the mills have not displayed a considerable degree of courage in endeavoring to hold their ground.

Cutting Distribution Cost

IT has been a frequent comment that industry, being burdened with too much capacity, must find a means of increasing consumption through greater concentration on the problem of distribution. The dream of socialism has long been to eliminate the vast competitive machine that transfers goods from the producer to the consumer. The Russian chaos and all other socialistic experiments demonstrate that the losses to society from the gross inefficiency of state-managed industry and the stifling of private enterprise far exceed the waste from the distribution methods inherent in the capitalistic system.

It is, of course, by no means established that distribution methods cannot be vastly improved without disturbing our present economic scheme. Unfortunately, better distribution is often confused with higher-pressure selling. Such misconception recognizes no limit to the quantity of goods the public can consume, putting the entire emphasis on merchandising. Thus we have everything from house paint to homes pressed for sale on the installment plan. The trouble is that the buying power of the consumer is not expanded one iota, as he adds one obligation to another. Inevitably, if his burdens become too great, he must default somewhere.

A proper view of distribution involves careful attention to every means of eliminating waste. Standardization and simplification, as fostered by

the Government, will do much to reduce costs. Closer analysis of clerical and sales organizations may uncover inefficiency which will respond to correction. A more thorough study of markets may reveal new uses for products.

It is idle to assert, however, that industry has reached the maximum of productive efficiency and that future progress is dependent upon economies in distribution. American industry has learned too much of the benefits of improved equipment to give up hope of further advances in that direction. The automobile industry, the spectacular example of low cost production, follows consistently the policy of replacing a machine whenever one can be had that will give greater and cheaper output.

Generally speaking society will consume more only when it produces more at less cost. The wage earner today has vastly more buying power than his predecessor of a generation ago because production per man has been increased so greatly through improvements in machinery and also, in a measure, through betterment in commercial practice. Further progress in both directions is to be expected. With an immigration act that is equivalent to a tariff on labor, and with foreign competition increasingly severe, American industry will find it necessary to place greater rather than less dependence on labor-saving equipment.

In a leading article in THE IRON AGE of April 2 it was shown that new machine tools installed in specific shops more than paid for themselves in a year's time. Opportunities for lowering production costs are as real today as they ever were. The manufacturer who remains blind to them will find himself outdistanced in the race.

Record-Breaking Railroad Traffic

RAILROAD car loadings in the first twenty-four weeks of this year, at 22,323,687, make a new high record, displacing the 21,979,049 of 1923. In 1924 the figure was 21,373,355. In no year previous to 1923 did the car loadings reach 20,000,000 in the first twenty-four weeks, 1920 holding first position, with 19,729,866. This year's performance is proof of a large-scale operation in industry and trade, however unsatisfactory profits may be. It appears to be a fact that the cars, on the average, are not so well filled with goods this year, or average shorter distances, thus resulting in fewer ton-miles than in 1923. Be this as it may, the fact is that the current movement is prodigious and that it represents notable business activity and employment of labor.

Longer Life for Wrought Iron

A NEW field for heat treatment appears to have been discovered recently. The results of committee investigation for the American Society for Testing Materials, made public last week at Atlantic City, show that wrought iron can be improved greatly by annealing. For example, bolts and staybolts, annealed after threading, were found to stand up much longer under vibration than when unannealed. One of the large railroads is now annealing its wrought iron and with

satisfactory results, the increased life being estimated in some cases as high as 100 per cent.

Wrought iron for many years has been living on its reputation. Little research has been conducted for the improvement of its properties or with reference to its use in new fields. The present investigation, which is to be a part of the testing society's research program, may result in new knowledge as to the best composition and structure and in the finding of new uses. Enough is known already to suggest a marked enlargement in our ideas of the value and usefulness of rolled iron. Both in steel and in non-ferrous alloys heat treatment has brought surprising developments. Wrought iron is not likely to prove an exception.

Tests for Corrosion and Fatigue

ONE is often struck with the similarity between the problems of corrosion and of fatigue of metals. Despite the fact that research has gone on for nearly a century and a tremendous mass of data is available, no acceptable theory of the mechanism has yet been presented. No one is able to say where failure is likely to start; where the first corrosion pit or the first tiny fatigue crack will appear. Once the action is started, no one has yet formulated convincing reasons why it should continue.

As with corrosion tests, fatigue results are acquired only after a long time. Comparative figures on corrosion of iron sheets in the atmosphere require years of actual exposure. Upwards of ten million reversals of stress are required before it is reasonably sure that the fatigued specimen will not break the next day.

Lastly, in neither field have accelerated tests been developed. Many have been proposed, and some extensively used, but at present they are merely attempts to speed up a measurable result, without assurance that the exact actions are being duplicated. Consequently, these accelerated tests, in the last analysis, must be compared with the findings of the long time tests, simply because there is no accurate knowledge of the inner mechanism of the corrosive and fatigue phenomena.

Having these things in mind, it is worthy of note that so many experimenters are still engaged in piling up mountains of figures representing the response of metal to this or that corrosive action, and paying small attention to the reliable long-time tests that are available.

The engineer and constructor is easily convinced that copper bearing iron and steel is more resistant to atmospheric corrosion in temperate climates than non-copper bearing—not because the copper bearing sheet loses less weight when dipped in acid or sprayed with brine, but because a committee of the American Society for Testing Materials several years ago built test racks, holding a large number of selected sheets of various analyses, manufacture and thickness, and left them out in the weather until they rusted away. One of these was placed in an industrial center; another at the seashore; the third in the pure country air. In the course of time the sheets perforated and fell apart; the thin ones failed before the thick ones, and those in the city

faster than those in the country, as was to be expected. The important thing, however, was that despite locality or gage, specific sheets failed in practically the same order.

No short time corrosion test is needed to support such results as these. Quite the opposite. To the engineer they are conclusive. The only value of a short time test would be to place in the correct order of resistance some new commercial product which may be proposed in the future. In fact, any combination of short time tests purporting to determine the resistance of metal to atmospheric corrosion must be able to do something like this:

Samples of the thin sheets exposed by the Society for Testing Materials might be exposed to the atmosphere a short time—say, six months—enough for action to start but not progress very far, and then be appraised by the proposed criterion (which might be loss in weight, depth of pit, or loss in ultimate strength). This criterion must then be able to arrange correctly the short time tests in the same order as that in which actual and ultimate failure occurred in the long time test. Then the presumption would be very strong that any new material could be properly classified by the same criterion or the same short time test.

These things seem so obvious that it is strange experimenters often lose sight of them. Therefore it is worth while to repeat the obvious: that any accelerated test must be checked closely against actual life tests before its validity will be accepted by the engineering world generally. Lacking that coordination, it becomes merely an interesting laboratory exercise.

Some Blast Furnace Records

THREE blast furnace records are interesting to set together. The maximum number of blast furnaces in the United States was in the period 1877 to 1881. The maximum output per furnace in blast was at the beginning of 1915, when few furnaces were in operation, and the maximum output per furnace with the blast furnace industry very active occurred only recently in the March-April peak of pig iron production.

The long time swing is that the output per furnace increases more rapidly than does the total production, hence the number of furnaces required decreases. The short term swing is that when pig iron demand is light the tendency is for only the larger furnaces to operate, while when demand is heavy all furnaces try to run. Hence, in the short swing the average output per furnace is larger in dull times than in active times.

The significant thing about the recent record, made in March and April, is that the average output per furnace in blast was nearly as great as the high record made in the past, when the total production was light and only the fittest furnaces were running.

It is a matter of historic interest to set down details of the period in which the number of blast furnaces in the United States was at the maximum. It chanced that the same maximum, 716, was reached in two years, 1877 and 1881. To show the increase to 1877 and the decrease after 1881, the number

five years before and five years after is given as follows:

Number of Blast Furnaces in the United States			
1872	612	1880	701
1877	716	1881	716
1878	692	1886	577
1879	697		

The average number in blast in the five years 1877 to 1881 inclusive was 323, and the average daily output per furnace in blast was 25 tons.

Because only the fitter furnaces are operated in poor times there are two sets of records of average production per furnace, one made in poor times, the other in good times. As to poor times, the following table shows outputs per furnace in selected poor times:

Average Daily Output Per Furnace in Blast

	Number of Furnaces	Daily Per Stack, Gross Tons
Nov. 1, 1900	171	173
Aug. 1, 1904	164	214
May 1, 1909	222	266
Jan. 1, 1915	146	477
Aug. 1, 1921	69	408

Times of heavy total production have made the following showing:

Average Daily Output Per Furnace in Blast

	Number of Furnaces	Daily Per Stack, Gross Tons
May 1, 1900	267	154
July 1, 1903	285	193
Aug. 1, 1907	336	214
Dec. 1, 1910	314	272

Last March opened with 254 furnaces active and ended with 245, making about 460 tons daily per furnace. April saw a decrease to 220 furnaces and May a decrease to 196. The April average was 466 tons and the May average 454 tons.

Thus the average output per stack lately, in a period of heavy production, has been nearly as great as the highest average shown in any period of light production, when few except very large furnaces were operating, and it has been very much greater than average outputs in the past when many furnaces were running. It may be said, roughly speaking, that the average output per stack has increased by two-thirds in 15 years. The greatest single influence in this progress has been widening of the hearth.

It will be recognized that in the long range comparison the stacks counted in the eighteen seventies and eighties included charcoal stacks, which were then very common. The comparisons made above for the past 15 years exclude charcoal stacks, but there are only 24 of them. In connection with the May blast furnace report of THE IRON AGE it was noted that there are now 397 coke furnaces capable of making pig iron.

Standardization of drawings and of drafting room practice is about to be undertaken by the American Engineering Standards Committee, 29 West Thirty-ninth Street, New York. This will cover many details, including such items as screw threads, which now are represented by 23 different methods. Some work along this line already has been done by the Navy Department and by several prominent manufacturers. This work is to be extended and brought, so far as possible, to uniformity.



Square Pegs and Round Holes

How the Milwaukee Apprenticeship Plan Sorts Out
Misfits in Industry Before They Can Lose
Money for Themselves and Their Employer

BY H. A. FROMMELT*

ONE of the major difficulties which have always faced the employer desiring to adopt some form of apprentice training is the high death rate of interest and enthusiasm; the excessive turnover of young men learning a trade. A good deal of this trouble is due to the fact that there is no way of telling what sort of work a boy is suited for until he has been under the eye of a foreman or supervisor for several weeks. Square pegs will not stay very long in round holes—even if they are placed there by mistake. But the Milwaukee Metal Trades Group has found a way out of this difficulty. They have cut down apprentice turnover from about 33 per cent to practically nothing, by using as a sort of pre-apprenticeship the vocational schools which their State provides.

Vocational or part time schools as a part of our system of industrial education have become general throughout our country. The Federal government extends aid to every State inaugurating part time schools. While these institutions are intended primarily to continue the educational contact for young people in industry between the ages of fourteen and eighteen they have become a powerful instrument in the promotion and development of apprenticeship training. Compulsory part time attendance of young people employed in industry means that all young men gather at these institutions for a short period each week. In other words, all of the apprenticeable material in any community comes under this central educational influence.

Vocational Schools Already Established

The vocational school is actually a miniature of the industrial community in which it is located. Yet, though equipped with workshops, offices and stores of various kinds it is by no means intended to function as a trade school. It does supplement the early years of industrial contact for youth by supplying such related instruction as industry could not afford to give. The vocational school becomes a center, from which radiate such influences as are necessary to reestablish the tradition of apprenticeship. The parents of the community are made a part of the educational processes of these part time schools so that they too become

supporters of traditional trade training methods. Unless the parents of our young boys properly direct their allegiance, little of permanent value can be expected of any scheme established to promote a firm and intelligent apprenticeship tradition.

A Probationary Apprenticeship

With industry properly cooperating the vocational school can serve as a place of probation for the young applicant to an apprenticeship. In the Milwaukee plan this has been tried with telling success. The young man desirous of entering an apprenticeship is not started immediately upon his work in the shop. The vast majority of these youngsters are at best in an undecided and vacillating state of mind. This is recognized by the Industrial Commission of Wisconsin to the extent that it allows a contract signed at the beginning of an apprenticeship to be annulled at any time during the first three months, or the "probationary period," as it is termed.

Let us consider for a moment the results of this plan so far as it affects the shop organization. The foremen as a part of the training organization of the shop must expect, among other things, a considerable turnover among the probationary apprentices assigned to them. Perhaps it becomes apparent to all concerned that the young man is not suited to this particular trade and he stands out, in the mind of his foreman, as but another instance of much valuable time spent in a very futile manner. This holds true even in the case where the young man is placed in charge of a training department or a vestibule school or any other form of preliminary training department such as is commonly used in this country.

Perhaps the outstanding disadvantage of the old system is that of the cost of turnover among these probationary apprentices. That this is higher in the case of apprentices than of any other class of workmen cannot be doubted. If the cost of turnover for the ordinary employee is calculated to be somewhere between twenty-five and fifty dollars then surely the cost of

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(Concluded on page 53)

Testing Society's Annual Meeting

Corrosion, Fatigue of Metals and Metals at High Temperatures Discussed at Atlantic City—New Steel Specifications—Research Activities

DESPITE a shorter program than usual, the sessions of the twenty-eighth annual meeting of the American Society for Testing Materials at Atlantic City, N. J., last week, June 23 to 26, were full of valuable contributions. Several new and important steel specifications were presented. Corrosion, research, fatigue of metals and strength of metals at high temperatures came in for special attention. It was brought out that in the year there had been over 115 different committee and sub-committee sessions compared with 84 for the preceding year.

Steel, Fatigue of Metals and Strength at High Temperatures

ONE of the sessions which brought out the largest attendance was that devoted to steel. At this meeting the important committee A-1 on steel presented its annual report as well as committee A-4 on heat treatment of iron and steel and committee A-9 on ferroalloys. Four papers were also presented relating to fatigue of metals and the testing and properties of steels at high temperatures. Discussion was limited, due to the large number of items on the program and because the papers were grouped according to subjects and discussed jointly.

New Steel Specifications

New specifications were an important feature of the various committee reports. Revisions of seven specifications were reported by the committee on steel and accepted for publication as tentative standards. Three new tentative standard specifications were approved covering respectively, structural silicon steel, carbon steel castings for valves, flanges and fittings for high temperature service, and alloy steel bolting material for use at high temperatures. Some of the details leading up to the formulation of these specifications are presented in *THE IRON AGE*, March 26, page 905. It was indicated by the committee in its report that the two latter specifications, which are in a new field, might be expected to undergo some revision during the coming year. The specifications for silicon steel for the main stress-carrying numbers of structures were accepted as tentative without discussion.

The proposed definitions of heat treatment terms favored by the American Society for Steel Treating were approved by the committee on heat treatment of iron and steel, but it was announced that a new joint committee would soon be organized by the American Society for Testing Materials, the Society of Automotive Engineers and the American Society for Steel Treating to review the present situation and if possible to reach an agreement relating to such definitions.

Ferroalloy Specifications

The report of the committee on ferroalloys presented new specifications covering the leading alloys in this field. There was some discussion prior to their acceptance; J. T. MacKenzie, chief chemist American Cast Iron Pipe Co., Birmingham, Ala., suggested that limits be set for the manganese content in individual determinations for grade A speigleisen. Shipments in which, for example, 8 per cent and 30 per cent alloys are mixed might average within the present limits of the specifications, but would give trouble to the iron foundry which makes additions of this alloy in small amounts.

L. W. Spring, Crane Co., Chicago, called attention to the wide difference in the disintegration of ferro-silicon meeting the requirements of grade A (47 to 53 per cent Si) in the proposed specifications. It is more marked with silicon over 50 per cent than when less, the minimum disintegration having been observed in

an alloy containing about 48 per cent silicon. He suggested a modification in the present specifications to take account of such effects. Both these matters were referred to the committee for consideration during the year.

Fatigue of Metals

An improved fatigue testing machine in which the endurance limits of metals may be determined under direct stress (cycles of tension-compression) was described in an interesting paper by Paul L. Irwin, Westinghouse Electric & Mfg. Co., Pittsburgh, entitled "Fatigue of Metals by Direct Stress." Comparisons were given for various steels and forged manganese bronze to show that the endurance limit obtained by direct stress is the same as that obtained by the more commonly used flexural stress tests.

Dr. D. J. McAdam, United States Naval Experiment Station, Annapolis, Md., called attention to direct stress and flexural tests recently carried out in England in which differences were found in the endurance limits determined by the two methods. He thought possibly that, if the customary logarithmic and semi-logarithmic plotting should be used by Mr. Irwin, similar differences might be found in the reported tests.

The importance to engineers of Mr. Irwin's findings was emphasized by Prof. H. F. Moore, University of Illinois, Urbana, Ill. In his opinion they confirmed the viewpoint that flexural tests generally gave very useful information. The reported tests for metals in which the endurance limit was below the proportional limit should be followed by tests on metals in which the endurance limit was above the proportional limit. He pointed out that, even though there is a stress distribution in rotating beam tests, it is not greater than that encountered in many parts in service, such, for example, as piston rods, connecting rods, etc. Likewise 10 rotating beam machines could be purchased at no greater cost than one direct stress machine.

A report of recent investigations on fatigue of metals at the laboratories of the Air Service, McCook Field, Dayton, Ohio, was presented by R. R. Moore, chief of physical testing branch, in a paper entitled "Some Fatigue Tests on Non-Ferrous Metals." In addition to a description of an improved type of rotating beam machine, some test results were given for pure magnesium, aluminum, and a cast and a forged magnesium-aluminum alloy, and naval brass. The author also discussed at length the endurance properties of other non-ferrous metals and the stress concentration caused by a notch.

This paper prompted discussion by Dr. McAdam and Prof. Moore, who dealt largely with the question of whether certain of the non-ferrous metals, such as nickel, monel metal and duralumin, gave definite signs of an endurance limit and the number of stress cycles necessary to prove its existence. Conflicting views were expressed.

An important paper was presented by T. D. Lynch, N. L. Mochel and P. J. McVetty, Westinghouse Electric

& Mfg. Co., entitled "Tensile Properties of Metals at High Temperature Showing Effect of Stress and Time." This paper was not preprinted.

The importance of long-time (sustained loading) tests to designing engineers was discussed. It was shown that the proportional limit of the customary short-time tensile test has a definite physical meaning at high temperatures for medium carbon steel and that continuous creep at or below this stress is not to be expected. On the other hand this was not true for the non-ferrous metals tested, although metallurgical changes may be shown by further work to account for such differences.

In a short report, "Typical Static and Fatigue Tests on Steel at Elevated Temperatures," Prof. T. M. Jasper, University of Illinois, discussed the endurance limits at various temperatures of some wrought ferrous metals and their relation to typical tensile tests. Special attention was drawn to the fact that, at tempera-

tures above from 400 to 600 deg. Fahr., the tensile strengths are materially lower when tests are made with very slow increase in load above the proportional limits than when carried out at ordinary laboratory speeds of testing. It was suggested that similar effects are to be expected in fatigue strengths.

An explanation was attempted for the increase in tensile strength at "blue heat" when testing normalized medium carbon steel.

In discussing this report H. J. French, Bureau of Standards, Washington, pointed out that the most useful factor to designing engineers, of those ordinarily determined in tensile tests, was the proportional limit which closely approximated for hot-rolled low-carbon steel the maximum stress permitting very long life and freedom from deformation. Comparative sustained loading and short-time tensile test results were presented which confirmed the conclusions drawn by Messrs. Lynch, Mochel and McVetty for ferrous alloys.

Corrosion—Wrought and Cast Iron

THE major portion of one session was devoted to the subject of corrosion. At the same session the committee reports were presented on wrought iron, cast iron and malleable iron.

Corrosion

Some exceedingly important new work is being conducted by the society in the study of corrosion. The investigations of this organization in this field have long attracted attention, particularly the work on field tests covering commercial sheet metal in three localities (Fort Sheridan, Pittsburgh and Annapolis) and observation of the same metals in total immersion tests. The work of the society some years ago on metals protected by various pigments is also recalled.

The new work embraces both field and accelerated corrosion tests of metallic-coated products. This is to be conducted on an ambitious scale and promises to be of large importance. That the interest in this subject is large is evident from the fact that, when the committee attempted to raise \$6,000 with which to conduct the work, contributions of \$10,000 were easily obtained, with much labor and all the material generously donated.

At the session referred to, the report of the committee A-5 on corrosion was presented by its chairman, J. H. Gibboney, chemist Norfolk & Western Railway, Roanoke, Va. In this report details of these tests are fully presented. Test racks, designed to last 25 years, are being erected in Pittsburgh, Altoona, State College, Pa.; Sandy Hook, N. J., and Key West, Fla. Hot galvanized sheets with five different weights of coating, zinc coated wire with four different weights of coating, chain link fencing, structural shapes, hardware and line material will be exposed to the weather and observed at intervals. The results are expected to give

much needed information on the relative life of various irons and steels as base materials when covered with zinc coatings of various thickness. Other metal coatings will also be investigated.

Papers on Corrosion

Two papers on corrosion were also read; the first on "Accelerated Corrosion Tests on Bare Overhead Electrical Conductors," by Frank F. Fowle, consulting engineer, Chicago. The material under observation was inclosed in a box and subjected to cycles of warm dry air, humid air, dilute bituminous coal smoke and fine water spray. After 800 cycles, each lasting 8 hr., the specimens were removed and examined. By this time all galvanized wire and cable had developed widespread failure in the coating. The aluminum, copper and copper-clad steel developed an exceedingly thin layer of oxide, but the actual loss of metal was very slight. Little if any difference was noted in the behavior of solid wire and stranded wire of the same grade of material.

Earle Blough, technical director Aluminum Co. of America, Pittsburgh, presented a brief note on "The Evolution of Corrosion Tests." In addition to the loss of weight of a corroded sample, and the depth of pitting, a third test is of great value, namely, the loss in strength and ductility. This shows the effect of corrosion on the residual and apparently unattached metal. Several aluminum alloys exposed to the salt spray test were investigated in this manner—some of them were practically unchanged in strength and ductility after 2000 hr.; others had lost half the original strength with very small elongation.

Considerable discussion of these papers emphasized the fact that specialized routine had been developed for certain conditions—such as moist sea air—but no

What Was Developed in the Week's Meetings

Corrosion: Progress made in comprehensive field and accelerated tests of metal-coated products.

Fatigue of Metals: Two contributions brought new information to the subject.

Strength of Metals at High Temperatures: Several authorities discussed a subject of increasing importance, seeing that higher steam temperatures are demanded in power plants and certain industrial process work.

Steel: New specifications proposed for silicon structural steel; for carbon steel castings for high temperature service and for Alloy steel bolting material at high temperatures.

Ferroalloys: New specifications proposed for various alloys as well as methods of sampling and of chemical analysis.

Metallography: X-ray metallography and crystal analysis surveyed in a comprehensive way.

Research: Achievements of the past recounted and plans for the future outlined.

simple accelerated corrosion test was known which had general application.

Wrought, Cast and Malleable Iron

Regular committee reports presented at this session included committee A-2 on wrought iron, committee A-3 on cast iron and committee A-7 on malleable castings.

Heat Treatment of Wrought Iron

A few minor changes in specifications for wrought iron tubes, staybolt and chain wire recommended by the wrought iron committee. The sub-committee on research also presented some interesting observations of annealed staybolt iron. It was known that, when staybolt iron is threaded, the vibrating test drops from about 30,000 to about 2500. It is now found that annealing these threaded bars at 1450 deg. Fahr. will double the life under the vibrating test. Annealed staybolts and equalizers of wrought iron are now in use on the Lackawanna Railroad.

An interesting chemical analysis for the determination of slag and oxides in wrought iron was included in the printed report of the committee.

Cast Iron

Considerable discussion followed a report of the committee on cast iron which reported, through its chairman, Dr. Moldenke, the determination to abandon

the present arbitration bar (1.25 in. diameter by 12 in. span) in favor of an international standard bar (1.20 in. diameter by 18 in. span). Some of the results which led to this decision were given in **THE IRON AGE**, March, 26, page 906. In addition to conforming to the best foreign practice the new bar is thought to give a more accurate index of the strength of the iron in flexure. Supporters of the arbitration bar thought that these considerations were insufficient to warrant buying new test equipment and necessitating a conversion factor to compare old results with new.

Malleable Iron

The chief point in the report of the committee on malleable iron was a proposal to add a requirement to the present standard specification for malleable castings so that test pieces shall show a minimum yield point of 30,000 lb. per sq. in. It was stated that this was proposed in order that engineers may more intelligently select a unit stress in their calculations. A request for an additional specification for malleable iron of lower quality is also under consideration. Some consumers believe that such material would cost less and be easier to machine, but Prof. Enrique Touceda, Albany, N. Y., pointed out that such a lower grade of malleable iron would undoubtedly be unsound metal.

The reports of these committees were acted upon favorably by the convention.

Research Activity of the Society

THE subject of research was a prominent topic at one of the sessions. The report of committee E-9 on correlation of research, which was appointed last year, was presented by its chairman, Prof. H. F. Moore, University of Illinois, Urbana, Ill. The report consists of two parts, which discuss the work of the committee during the year and the plans for the future.

A Review of the Past

Realizing that its first activities might well be the enumeration and study of the present agencies in the society for research, the committee took up as its first major work a survey of the present activities of standing committees. The results of this study has been put in a document entitled "List of Current and Proposed Researches and Investigations of A. S. T. M. Committees," which was briefly reviewed in **THE IRON AGE** of June 18. In the opinion of the committee this survey which has been made indicates that there is already going on in the society a considerable amount of worthwhile research work on the properties of materials and on the development of methods for determining such properties.

The committee report contains a list of research work already in active progress, which is pointed to as by no means comprehensive, but which includes 12 different activities. Among these may be mentioned:

Atmospheric corrosion and water corrosion of sheet steel, both bare and with metallic coatings, including a study of accelerated corrosion tests.

Methods of corrosion-resistance testing.

Tests of various metal screen wire cloths.

Magnetic properties of steel and their correlation with other properties.

Properties of white metal bearing alloys.

The committee announced that it had taken action on several matters connected with research in the society, among the most important of which is the recommendation to the executive committee for the establishment of an annual research lecture to be delivered by some outstanding man in the field of materials, and the awarding annually of a medal for a paper representing an outstanding achievement in the field of materials. Both of these recommendations were adopted by the society at the annual meeting, Wednesday evening, June 24.

The appointment of a research committee on the effect of tin upon high-speed tool steel is one of the new recommendations of the committee which has been approved by the executive committee. This committee when appointed will be the first research committee of the society.

Certain research problems in connection with the heat treatment of wrought iron are to be studied by cooperation between two or three of the committees interested and some interesting results are expected from this research.

Plans for the Future

As to future plans, the committee intends each year to survey the research work in progress as carried out by various committees and to cooperate with other bodies, studying and classifying all such researches and investigations. The committee feels that the matter of corrosion resistant, heat-resistant and electrical-resistance alloys, which formed the subject of an important symposium a year ago, should be kept alive and it is now in consultation with the committee which developed that symposium.

Because of a suggestion that valuable results might be obtained from a research on the nature, determination and significance of the yield point of various grades of structural steel, the committee has asked a small committee, consisting of representatives of the steel makers, steel users and testing engineers, to consider this matter and to report whether such a research would be worthwhile and, if so, along what general lines it might be conducted.

Methods of Testing

Committee E-1 on methods of testing through its chairman, J. A. Capp, General Electric Co., Schenectady, N. Y., presented a voluminous report which discussed changes in various definitions as well as standard and tentative specifications in its particular field. The committee also reported proposed methods of flexure testing of metallic materials and for torsion tests to determine the mechanic properties of metallic materials under shearing stress. New tentative specifications were proposed for sieves for testing purposes.

A proposed additional method for determining the elastic limit which was offered by the committee was the subject of some objection by one or two members, the matter being referred to the committee for further consideration during the coming year. Revisions were submitted of methods of tension, compression and Brinell hardness testing of metallic materials.

Purchases on Specifications

"The Purchase of Materials on Specification" was the title of a paper by Dean Harvey, materials engineer Westinghouse Electric & Mfg. Co., Pittsburgh. Mr. Harvey, in presenting the paper, emphasized the object of purchase specifications, calling attention to the im-

portance of the use of national standard specifications, such as those issued by the A. S. T. M. He called attention also to the value of purchase specifications to

industry, the need of standardizing quality and dimensions of materials, the functions of purchase specifications, their requirements and their enforcement.

Non-Ferrous Metals and Metallography

AN outstanding contribution to the subject of metallography was a report on X-ray crystal analysis prepared by a special subcommittee and presented after the report of committee E-4 on metallography. It was read by the chairman of the committee, Dr. Zay Jeffries, research metallurgist, Aluminum Co. of America, Cleveland, who stated that it had been prepared jointly by several prominent workers in this field.

The report, which will be available later in printed form, is a review of the subject of X-ray metallography and easily constitutes a text on the subject. It is divided into two parts, metal radiography and X-ray crystallography. In dealing with metal radiography, the report discussed the apparatus used and some of the results as well as the advantages in locating internal defects in solid metals and in obtaining information connected with certain foundry operations. Dr. Jeffries pointed out that the commercial phase of the X-ray as applied to foundry investigations gives promise of valuable results in view of what has already been accomplished.

In discussing the limitations of this work, the speaker dwelt on the cost, stating that X-ray photographs run as high as \$1 to \$5 each and that as many as 40 pictures must sometimes be taken.

The second phase of the subject—X-ray crystallography—is discussed by the report as to its physical basis, the apparatus and methods, and the results in the field. Some of the latter which were mentioned were, (1) identification of crystalline constituents; (2) light on solid solutions; (3) determination of grain size, and (4) absolute determination of orientation.

There were two brief discussions of this report. V. T. Malcolm, metallurgist Chapman Valve Mfg. Co., Indian Orchard, Mass., testified that there is no other means of detecting interior defects in valves and fittings for high temperature service outside of the X-ray. In the case of a large installation in Boston, where such fittings are used at a temperature of 750 deg. and at a pressure of 1200 lb., X-ray examination was applied to all of them.

That the possible acquisition of more powerful tubes would simplify the use and expense of X-rays, was the belief of Dr. Ancel St. John, consulting engineer, New York. He expressed the hope that then many and perhaps all defects can be disclosed on a fluorescent screen, thus speeding up the X-ray and reducing the cost by eliminating some or all photographs. He announced that an extensive investigation to determine this had been started under his direction.

The subcommittee announced that next year it hoped to present some X-ray definitions.

Metallography

The report of the regular committee on metallography E-4 was presented by the secretary of the committee, G. F. Comstock, consulting metallurgist, Niagara Falls, N. Y., in the absence of its chairman, Prof. William Campbell, Columbia University, who is now in Europe. Its principal feature was the preparation of a proposed recommended practice for the thermal analysis of steel which was adopted as tentative. An interesting report on micro-hardness by H. S. Rawdon, Bureau of Standards, Washington, was presented, appended to the regular preprint of the committee's report.

Non-Ferrous Metals

Three committee reports and two papers constituted the program for the non-ferrous portion of this session.

The chief points brought out in the three committee reports were: The announcement by committee B-1 on copper wire of complete agreement with the American Electric Railway Association on tentative specifications for hard-drawn copper trolley wire which were adopted; the presentation and adoption of new tentative specifications for Muntz metal condenser tube

plates formulated by committee B-2 on non-ferrous metals and alloys, as well as the developing of new specifications for certain high-strength light aluminum casting alloys and for aluminum base casting alloys in ingot form.

The two papers presented at this session were entitled "Softening of Hard Rolled Electrolytic Copper" by Norman B. Pilling of the International Nickel Co., Bayonne, N. J., and George P. Hallowell, Westinghouse Electric and Mfg. Co., Pittsburgh, and "A Note on the Microstructure of Aluminum-Iron Alloys of High Purity" by E. H. Dix, Jr., metallurgist, research bureau, Aluminum Co. of America, New Kensington, Pa.

The first paper contains a detailed study by means of tension tests of the rates of softening of hard-rolled copper when reduced various degrees initially and heated at temperatures below 500 deg. C. The quantitative effect of these variables is shown. The second paper deals with the occurrence of iron in alloys prepared from aluminum of much greater purity than was previously available.

The President's Address

The usual smoker and informal dance followed the annual meeting, Wednesday evening, June 24. F. M. Farmer, as retiring president, took as his title "Promotion of the Knowledge of Engineering Material." Emphasizing the unique position which the A. S. T. M. occupies, in that in the first place it serves all branches of industry since all of them use engineering materials, and in the second place that it not only contributes to the general fund of scientific and technical knowledge of such materials but renders a definite service through the development and standardization of specifications and methods of testing. Mr. Farmer discussed the purpose of the promotion of knowledge of engineering materials. He also took up the cost of the society's work and its value to industry. He drew the conclusion that "the total cost of the society to industry is of the order of \$300,000 to \$325,000 per year—a very reasonable figure considering that we have 40 committees actively functioning and devoting over 600,000 men-days to our work. Incidentally, it may be noted that the value of the annual business done by the industries receiving the benefit of our work is of the order of \$30,000,000,000 to \$35,000,000,000."

New Officers

The announcement of the election of new officers was formally made at this session, the details of which were presented in *THE IRON AGE* of June 25. The new president, Walter H. Fulweiler, received his early education at the William Penn Charter School, Philadelphia, and was graduated from the University of Pennsylvania in 1901 with the degree of B. S. in chemistry. His first position was with the Philadelphia Gas Works as a chemist following his graduation. He was later connected with the Kansas City (Mo.) Gas Co., becoming superintendent of the works in 1904. He became connected with the United Gas Improvement Co., of which he is now chemical engineer, in 1907. The Beale medal was conferred upon him in 1908 by the American Gas Institute, and the Grasselli medal in 1922 by the Society of Chemical Industry. He is a member of nearly all the leading chemical and engineering technical societies.

The new vice-president, Prof. H. F. Moore, University of Illinois, has been very active in the society for a number of years. The work which has gained for him international reputation are his investigations on fatigue of metals under the direction of the International Research Council, in his laboratories at Urbana, Ill. Besides this he is chairman of committee E-9 on the correlation of research and is an active member of several other important committees.

Labor Troubles Hamper Business

England and Belgium Hard Hit—Franc Exchange

Drop Causes Hesitation—Germany

Less Active

(By Cablegram)

LONDON, ENGLAND, June 29.

PIG IRON and steel position is growing worse and, with threatened labor troubles, the coal mining outlook is dismal. The Government is still considering industry's application for protection. Pig iron demand is poor and output has been further curtailed. The Tees Bridge Iron Works, Middlesbrough, has closed down, involving two furnaces. This leaves 14 Cleveland foundry iron furnaces now blowing. West Coast producers have reduced by two the number of furnaces operating, leaving only seven in blast.

Foreign ore is dull, Bilbao Rubio being held nominally at 21s. 6d. (\$5.22), c.i.f. Tees.

Steel is dull, especially for export, and makers are competing keenly for the few orders to be had. Some departments are active on domestic orders for structural and engineering materials. The rail mills are fairly busy on recent good orders.

Sheets and Tin Plate

Tin plate is easier on declining sales, down to 19s. 6d. (\$4.74) basis, IC, f.o.b., being accepted by the works. Merchants are sellers at lower figures. Export demand is hampered by depreciation of various foreign exchange rates.

Galvanized sheets are quiet and easy.

Black sheets, generally, are dull. There have been some small sales to Japan of 6 x 3 ft., 13's, 107 lb., at £15 5s. (3.31c. per lb.) and upward.

On the Continent of Europe

Continental markets are disorganized by the Charleroi strike and an impending general engineering strike in Belgium, coupled with depreciation of the franc. Business is restricted. Sterling quotations generally are steady.

The Société Anonyme des Laminoirs, Hauts-Fourneaux, Forges, Fonderies et Usines de la Providence, Marchienne-au-Pont, Belgium, has secured an order

from South Africa for 20,000 tons of 60-lb. steel rails.

Negotiations between France and Germany are proceeding, concerning the import quotas into Germany. It is probable that the ultimate imports of pig iron and semi-finished steel will be 1,750,000 tons annually, to be handled by the German Raw Steel Association.

French rail makers have formed their own syndicate, in anticipation of an international syndicate.

FRANCO-GERMAN ACCORD

Transfer of 1,700,000 Tons of Iron Annually—
International Rail Syndicate

(By Radiogram)

BERLIN, GERMANY, June 30.—The domestic market is dull, except for structural forms and thin sheets. Producers are shortening delivery terms.

Steel blooms are 11½ marks per metric ton (\$27.22 per gross ton); bars, 133 marks (1.44c. per lb.); thin sheets, 180 marks (1.95c. per lb.).

The Pig Iron Syndicate announces unchanged prices throughout July. The scrap market is weak, with prices downward. Exporters continue selling at considerably below domestic prices.

From January through May, the foreign trade report shows a big increase in exports of pig iron, bars, sheets and rails, as compared with the same months of 1924.

Franco-German Commercial Treaty

German negotiators have consented to accept annually 1,700,000 tons of iron from France, Sarre and Luxembourg, at half of normal import duties.

Negotiations for a revival of the pre-war international rail syndicate will be resumed in July, with Germany, France, England, Belgium and Luxembourg participating.

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £1, as follows:

Durham coke, del'd.	11 1s.	\$5.10
Bilbao Rubio ore	1 1½	5.22
Cleveland No. 1 tdy.	3 17	18.70
Cleveland No. 3 fdv.	3 13	17.74
Cleveland No. 4 tdy.	3 12	17.50
Cleveland No. 4 forge	3 11½	17.39
Cleveland basic	3 14½	18.10
East Coast mixed	3 18	18.95
East Coast hematite	4 19	24.06
Ferromanganese	15 10	75.33
*Ferromanganese	15 5	74.11
Rails, 60 lb. and up.	8 10 to 9 0s.	41.31 to \$43.74
Billets	6 10 to 7 5	31.59 to 35.23
Sheets and tin plate bars, Welsh	6 12½ to 6 15	32.20 to 32.80
Tin plates, base box	6 19½ to 6 19¾	4.71 to 4.80
Ship plates	8 10 to 9 0	1.84 to 1.95
Boiler plates	12 10 to 13 0	2.71 to 2.82
Tees	8 10 to 9 0	1.84 to 1.95
Channels	7 15 to 8 5	1.68 to 1.79
Beams	7 10 to 8 0	1.63 to 1.73
Round bars, 3/4 to 3 in.	9 0 to 9 10	1.95 to 2.06
Galv. sheets, 24 gage	15 17½ to 16 2½	3.45 to 3.50
Black sheets, 24 gage	11 15	2.55
Black sheets, Japanese specifications	15 5	3.31
Steel hoops	16 15 and 12 10*	2.33 and 2.71*
Cold rolled steel strip, 20-gage	16 0	3.47

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron:(a)		
Belgium	£3 3s.	to £3 4s.
France	3 3	to 3 4
Luxemburg	3 3	to 3 4
Basic pig iron:(a)		
Belgium	3 3	to 3 4
France	3 3	to 3 4
Luxemburg	3 3	to 3 4
Billets:		
Belgium	4 19	24.06
France	4 19	24.06
Merchant bars:		C. per Lb.
Belgium	5 10	1.19
Luxemburg	5 10	1.19
France	5 10	1.19
Joists (beams):		
Belgium	5 7	1.16
Luxemburg	5 7	1.16
France	5 7	1.16
Angles:		
Belgium	5 18½ to 6 0	1.28 to 1.30
1½-in. plates:		
Belgium	6 12½	1.44
Germany	6 12½	1.44
2½-in. ship plates:		
Luxemburg	6 12½	1.44
Belgium	6 12½	1.44

(a) Nominal.

EXPORT BONUS PROPOSED

Compensation for Import Taxes Sought by German Exporters of Finished Material

BERLIN, GERMANY, June 10.—Conditions in the German iron market are unsettled at present, due to great extent to the uncertainty prevailing about import taxes. Rhenish-Westphalian iron producers are agitating for a tax prohibitive to the import of foreign material, while consumers, especially in the South of Germany, who have always used a large amount of imported material, ask free import or at least a very low tax on rolled iron products. Various proposals have been made to find a basis on which an agreement might be achieved. It has been suggested that machinery manufacturers and other consumers of iron products should be paid an export bonus by the iron producers, but consumers in general do not favor this way of solving the problem.

Especially the trade in structural shapes and girders is comparatively quiet. The Siegerland works are in many cases cutting the prices of the Rhenish-Westphalian producers. As expectations for a brisk iron trade during May were not realized, the Raw Steel Syndicate, which up to now had restricted its output to 85 per cent of the total quotas of its members, fixed it at 80 per cent for June.

Competition is, however, increasing and some Rhenish-Westphalian works are accepting orders at a considerably shorter time of delivery than a few weeks ago. There is also here and there the possibility to buy material below the average price. Wholesalers are holding back orders and are also making strong endeavors to force prices down. The large consumers are buying only to the extent of actual requirements.

Dismissals of workmen and staff, taking place at some firms, are generally due not to scarcity of orders, but to reorganizations of the works. In this respect there is a considerable activity and a large number of American high-class machine tools are installed to increase production.

Sheet and Wire Markets Inactive

The trade in heavy sheets is quiet. In this line a tendency to form a syndicate is only small. Prices have remained at about the same level lately and are about 142 marks per ton (1.53c. per lb.) for heavy sheets, about 170 marks (1.84c.) for medium weights, about 195 marks (2.11c.) for plates No. 11 to 20 U.S. gauge, and about 205 marks (2.22c.) for plates of No. 20

gauge and higher. In thin sheets the constant fluctuations in prices are giving considerable trouble to the traders and have caused large losses. In special plates the works are well employed and at a recent meeting the producers decided to leave prices unaltered.

The market in wire is slack and foreign competition, especially from Belgian producers, is very strong abroad. The Rhenish-Westphalian producers are, however, well employed, and especially the producers of specialties are well booked. In special drawn wire some export orders have been taken, but the fact that foreign manufacturers are granting customers a six-month credit, which is generally impossible for German firms, is making it difficult for the latter to compete abroad. Negotiations for the establishment of a wire syndicate have come to a standstill, but will be continued in a few weeks.

Tube Syndicate About Perfected

The organization of the tube trade is, besides the Raw Steel Syndicate, the only one that has been firmly established and has started to work. Consolidation of the position of the tube syndicate is of considerable importance to foreign producers, as agreements made between German producers and the trade stipulate that the latter are not to sell any imported material, in order to exclude foreign competition from the home market. The organization of the whole tube trade is to be brought to such perfection that the business will be thoroughly controlled.

Prices are to be fixed right through for every transaction, even for the sale to the ultimate consumers, to prevent the cutting of prices. The whole organization will be perfected this month and, as it includes almost all the traders handling the material from the producer to the consumer, there will hardly be a possibility for a new trader to enter this line or of any new tube works to be started. The producers and traders have thus established almost a monopoly in this line.

Scrap is stagnant at present. Prices, weakening lately, have decreased by about 10 per cent. The large consumers are well stocked, which has a depressing influence. The decrease in prices is to a large extent caused by the scarcity of ready capital and by belief in the probability that, after a Franco-German commercial treaty has been negotiated, large amounts of scrap will be imported from France. Though the scrap trade is generally quiet during the summer, the decrease has set in early this year, and there are no prospects of an improvement before autumn.

STINNES CRISIS OMINOUS

Many Concerns Involved in Over-Extension—German Export Prices Below Domestic

BERLIN, GERMANY, June 16.—The iron and steel industry, the stock exchange and credit have been thrown into confusion almost without parallel by the Stinnes crisis. Put summarily, this crisis consists in the inability of the widely-ramifying Stinnes Concern to meet short-term liabilities maturing this month and in July. Though the immediate crisis has been overcome by bank support a much greater and more lasting crisis is feared, owing to the fact that nearly the whole of the Western "heavy industry" is in the same position as the Stinnes Concern.

By "Stinnes Concern" is meant not the clearly defined Rhine-Elbe Union, later the Electro-Mining Trust, but the "Firm Hugo Stinnes" of Mülheim on the Ruhr, which is really the Stinnes family concern. The Rhine-Elbe Union, consisting essentially of the corporations Deutsch-Luxemburg, Gelsenkirchen, Bochum Cast Steel, Siemens und Halske, and Siemens-Schuckert, is merely a loose fusion of corporations pursuing a common policy, in which Stinnes as stockholder held large interests. But neither the group nor any of its corporations individually is responsible for the "Firm Hugo Stinnes'" debts. And nothing that has happened impairs the solvency of these companies. The debts are liabilities contracted by the firm mostly for buying up stocks and industrial con-

cerns, and they have been incurred since Hugo Stinnes' death.

Better Industrial Conditions

The industrial position as a whole has improved. Unemployed on May 15 totaled only 274,000 as against a high point this year (February) of 594,000. A report by the Zentralverband der Metalwalzwerks und Huetten Industrie states that the 48-hr. working week is observed in only 7 out of 45 member corporations. Average weekly working hours are 54 to 56, but in exceptional cases 60 hrs. are worked.

The steel industry, however, is quiet. The Wire Rods Syndicate has been fully formed, and begins its selling operations on July 1. Manufacturing consumers of thin sheets and of tin plate have protested against the proposed increase of import duties in the new tariff, alleging that the high duties will make it impossible to compete with finished goods abroad. Steel works and rolling mills are receiving fewer orders; and the delivery terms have been shortened. Except for thin sheets, export is still being carried on at considerably below home prices:

	Home Price Per Gross Ton Marks	Export Price Per Metric Ton Per Lb.
Blooms	112.50 or \$27.22	£4 18s. 0d. or \$23.81
Billets	120.00 or 29.04	£5 3s. 0d. or 25.03
Slabs	125.00 or 30.25	£5 6s. 0d. or 25.76
Structural forms	132.00 or 1.43c.	£5 7s. 0d. or 1.16c.
Bars	135.00 or 1.46c.	£5 12s. 6d. or 1.22c.
Bands	160.00 or 1.73c.	£7 0s. 0d. or 1.52c.
Thick sheets	142.00 or 1.53c.	£6 12s. 6d. or 1.44c.

DUTY AFFECTS PIPE BIDS

French Maker Lowest but Tariff May Keep 2200 Ton Order Here

WASHINGTON, June 30.—With a quotation of \$45.75 per net ton, delivered at Cristobal, Panama, a French maker was the lowest bidder from the point of actual sales price on 2200 tons of 30-in. cast iron water pipe for the Panama Canal, the bids having been opened here on Wednesday of last week. The French bid was put in by B. Nicholl & Co., New York, for the Societe Anonyme des Hauts-Fourneaux et Fonderies de Pont-a-Mousson, near Nancy. This concern also named the shortest delivery period, 75 days. Under the terms of the circular calling for the bids it is stated they shall remain open for 60 days from the date of the opening, during which time acceptance will be made.

Whether the French manufacturer or an American producer will get the business depends on the question of taking into account a tariff duty of 20 per cent applicable to imports of cast iron pipe. The duty is considered, though not collected, in the case of foreign bids under the Panama Canal Act, to place American makers on equality with foreign manufacturers.

The next lowest bid was made by the Highbridge International Co., Highbridge Station, N. Y., whose

figure was \$46.44 per net ton delivered at Cristobal. This bid, however, is made subject to prior sale and it was intimated might prove a complication in making an award to this American interest. With the duty added to the French quotation the Highbridge company would be the lowest bidder.

The next lowest American bid was made by the United States Cast Iron Pipe & Foundry Co., for its Birmingham, Ala., district plant. It put in a figure of \$54.30 per net ton, delivered at Cristobal in 80 days. Other bids were made by the Warren Foundry & Pipe Co., Phillipsburg, N. J., \$55, delivered at Cristobal in 100 days, and R. D. Wood & Co., Florence, N. J., \$55.50, delivered at Cristobal, in 120 days.

In a note accompanying the French bid attention is called to the fact that the pipe is manufactured in laying lengths of 13 ft. 1½ in. The usual length is 12 ft.

The tariff duties are calculated on the basis of the sale price in the principal foreign markets of exportation. Should Cristobal be considered a principal country of foreign exportation for cast iron pipe the duty on the French figure would be \$9.15, which, added to the bid of \$45.75, makes a total of \$54.90. But if Cristobal is not so considered, the freight rate would be eliminated in calculating the duty and therefore would be somewhat lower. The \$54.90 is 60c. a ton higher than the bid of the United States Cast Iron Pipe & Foundry Co.

TIN PLATE FOR JAPAN

Conspicuous Among Inquiries—Texas Inquires for Foreign Rails

NEW YORK, June 30.—Inquiry from foreign markets is light and generally confined to small lots of material. Merchant buying from Japan shows no improvement but inquiries from large consumers appear occasionally. The Chinese market is obviously affected by strikes and political unrest. Demand for small lots of material for Cuba seems to be fairly well maintained, purchases including rails, barbed wire, pipe and sheets.

A feature of Japanese activity in recent weeks has been the purchase of wire rods, most of which business seems to have gone to Canadian mills. Canadian quotations on wire rods of 0.50 to 0.65 per cent carbon have been as low as \$49 per ton, c.i.f. Japan, compared with a low of \$50.50 per ton, c.i.f., the price occasionally submitted by American mills for export. Japan in the past has bought rods in Austria and Belgium and quite often in Canada.

Among current inquiries from Japan is one from Osaka municipality for 1100 pieces of 91-lb. high T rails of 14 meter lengths and 900 Abbott joints, bids opening July 6. Originally this inquiry called for 1800 pieces and included 900 pairs of fish-plates. Bids are being submitted on 10,000 boxes of oil can tin plate to an unnamed oil company in Japan. In this connection it is noteworthy that several weeks ago the Kioto Oil Co. came into the market for 20,000 to 30,000 base boxes of oil can tin plate, but as a result of greater firmness in the American market decided to postpone purchase. On export sales tin plate prices quoted by American makers are evidently rather uneven. Some manufacturers are holding firmly to a basis of \$5.70 per base box, c.i.f. Japan, while others are reported quoting lower, about \$5.60, which is still 30 cents per base box higher than the present British market, reported as \$5.30 per base box, c.i.f. Japan.

Considering Rail Imports

American importers continue fairly active in quoting on reinforcing bars and structural material. Prices on both Belgian and German material are about 2.95c. per lb., c.i.f., duty paid, or about \$35 per ton, c.i.f., Atlantic port, duty unpaid, for intermediate grade of Thomas steel. An active demand has recently developed from Texas for rails, buyers apparently being willing to consider quotations on the imported product. Among the larger lots reported under inquiry is one for 15,000 tons and another for about 5000 tons. It is

claimed by buyers that quotations have been submitted by importers as low as \$34 per ton, c.i.f., duty paid, Galveston. The 3000 tons of 90-lb. rails recently shipped from Antwerp to Baltimore are understood to be for the Detroit, Toledo & Ironton Railroad.

Rogers, Brown & Crocker Brothers, Inc. Elect Officers

NEW YORK, June 30.—The merger of Rogers, Brown & Co. and Crocker Brothers, merchants of pig iron, coke, ferroalloys, etc., as Rogers, Brown & Crocker Brothers, Inc., becomes effective July 2. In THE IRON AGE of June 4, the election of D. Fairfax Bush as chairman of the board and of Arthur A. Fowler as president was reported, but other officers had not then been named. These are now announced as follows: Vice-presidents, J. K. Pollock, George A. Crocker, Jr., W. T. Shepard, Charles H. Newcomb, Charles A. Reed, Louis H. Miller; vice-president and secretary, L. H. Atkinson; treasurer, J. Bently Cueman; comptroller, Edwin Raum; assistant to president Oswald Fowler.

Consolidations of the offices of the two companies forming the new company are now taking place. The New York office of Rogers, Brown & Co. at 30 Church Street is being vacated and the office in New York of Rogers, Brown & Crocker Brothers, Inc., will be at 21 East Fortieth Street in the building which has for several years been occupied by Crocker Brothers. In Philadelphia the office of Crocker Brothers in the Pennsylvania Building will house the new company. The Cincinnati office will be in charge of J. K. Pollock, who has been one of the partners of Rogers, Brown & Co. Standish Meacham, son of D. B. Meacham, will retire from the Cincinnati office. He will spend several months in Europe, and upon his return may engage in Y. M. C. A. work, in which he has long been interested. D. B. Meacham will retain his interest in the business, but will be less active than formerly.

American Company Gets Greek Contract

John W. Doty, president Foundation Co., New York, announced Tuesday upon his return from Europe that he had signed a contract with the Greek Government for a \$26,000,000 irrigation project in the delta of the Vardara River, Greece. He commented on the Santa Barbara, Cal., earthquake by saying that such property losses would be averted if buildings in areas likely to be subject to earthquakes were built of steel and concrete.

JUNE IRON OUTPUT

Net Loss of 5 Furnaces—Eight Shut Down and 3 Blown In

Daily Rate 5670 Tons Less Than May, a Decrease of 6 Per Cent

From statistics gathered by telegraph and with the output for the last one or two days of June estimated, by the companies reporting, the production of pig iron last month was 2,666,160 gross tons, or 88,872 tons per day. This compares with 2,930,807 tons or 94,542 tons per day in May. The decline in June from May was 5670 tons per day, or about 6 per cent. The June output is the smallest this year. The next lowest production was in November, last year, when the rate was 83,656 tons per day.

There was a net loss of 5 furnaces in June, 8 having been blown out or banked and 3 having been blown in. This compares with a net loss in May of 24 furnaces. The number of furnaces active on July 1 was 191, as against 196 on June 1. The estimated daily capacity

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1919—Gross Tons

	1920	1921	1922	1923	1924	1925
Jan.	97,264	77,945	53,063	104,181	97,384	108,720
Feb.	102,720	63,187	58,214	106,935	106,026	114,791
Mar.	108,900	51,468	65,675	113,673	111,809	114,975
Apr.	91,327	39,768	69,070	118,324	107,781	108,632
May	96,312	39,394	74,409	124,764	84,358	94,542
June	101,451	35,494	78,701	123,548	67,541	88,872
July	98,931	27,889	77,592	118,656	57,577	—
Aug.	101,529	30,780	58,586	111,274	60,875	—
Sept.	104,310	32,850	67,791	104,184	68,442	—
Oct.	106,212	40,215	85,092	101,586	79,907	—
Nov.	97,830	47,183	94,990	96,476	83,656	—
Dec.	87,222	53,196	99,577	94,225	95,539	—
Year	99,492	45,325	73,645	109,713	85,075	—

of these 191 furnaces was about 87,250 tons, compared with 89,500 tons as the daily capacity of the 196 furnaces in blast June 1.

Pig Iron Production by Districts, Gross Tons

	June (30 days)	May (31 days)	April (30 days)	March (31 days)
New York	137,737	143,770	192,405	217,038
New Jersey	—	—	—	—
Lehigh Valley	63,480	70,618	81,612	81,610
Schuylkill Valley	60,004	61,427	67,030	86,622
Lower Susquehanna and Lebanon Valleys	32,125	32,322	40,191	46,580
Pittsburgh district	481,894	582,356	668,623	785,487
Shenango Valley	87,742	88,589	125,322	163,222
Western Pa.	102,370	117,812	135,366	150,571
Maryland, Virginia and Kentucky	73,406	84,766	94,550	102,205
Wheeling district	102,366	110,328	126,385	142,323
Mahoning Valley	272,692	287,521	319,973	339,160
Central and Northern Ohio	308,322	322,959	306,483	315,802
Southern Ohio	42,514	47,450	42,999	39,804
Illinois and Indiana	541,621	595,273	635,479	703,000
Mich., Minn., Mo., Wis., Colo. and	—	—	—	—
Utah	127,109	138,073	130,840	130,128
Alabama	227,748	241,611	285,351	253,820
Tennessee	5,030	5,932	6,349	6,875
Total	2,666,160	2,930,807	3,258,958	3,564,247

Among the furnaces blown in during June were the following: One furnace of the Alan Wood Iron & Steel Co. in the Schuylkill Valley; one Carrie furnace of the Carnegie Steel Co. in the Pittsburgh district, and the Mary furnace in the Mahoning Valley.

Among the furnaces blown out or banked during June were the following: One furnace of the Alan Wood Iron & Steel Co. in the Schuylkill Valley; three furnaces of the Carnegie Steel Co. and one furnace of the Jones & Laughlin Steel Corporation in the Pittsburgh district; the Perry furnace in western Pennsylvania; one South Chicago furnace of the Illinois Steel Co. and one Gary furnace in the Chicago district.

Commission Dismisses Complaint

Also Makes Announcement of Policy in Regard to Investigations Demanded by Congress

WASHINGTON, June 30.—The Federal Trade Commission, which has dismissed many complaints as a result of its new policy of procedure, last week announced the dismissal of its complaint against manufacturers of and associations of dealers in farm implements. The complaint charged conspiracy in price fixing, eliminating competition of non-member dealers and attempting to cut off the supply of implements and equipment to farmers' cooperative associations in the Atlantic Seaboard States. The complaint had been directed against some of the most important implement manufacturers of the country. Consistent with their attitude toward the new policy of the majority members of the Commission, Commissioners Nugent and Thompson dissented to the dismissal of this complaint.

When the Commission adopted its new procedure the majority voted against making public any statement in connection with announcements concerning dismissal of cases. The minority declined to accede to this order and has repeatedly made public statements. The latter has been so vigorous in pursuing this course and constantly attacking the majority for its so-called non-publicity policy that the majority apparently has now been thrown on the defensive and recently came out with a publicity statement of its own in connection with the dismissal of the Wholesale Grocers' case. Thus, the majority appears to have violated its own rule.

From the outset the attention of the majority has been called to the fact that it was making an error in curtailing in any way publicity concerning proceedings before it. It was contended that any effort to withhold

publicity would in the end be injurious and in no way would be helpful.

Last week the Commission adopted an order which directs attention to provisions of the law, effective July 1, which prohibits use of any part of the Commission's fund for making investigations called for by only one branch of Congress, except where violation of the anti-trust laws is involved. In consequence resolutions, such as those passed by the Senate shortly before adjournment of the recent session of Congress, will be disregarded unless violation of the anti-trust laws is charged. The order of the Commission also places upon individual members the responsibility of determining what investigations should or should not be made. It is evident that some of the investigations ordered by the Senate will not be made. Among them might be one which related to the General Electric Co. and which was investigated, it is claimed, for purely political purposes. The order of the Commission, like all other important decisions made recently by majority members, has resulted in dissent on the part of the two minority members, Commissioners Thompson and Nugent, who contend that its employees are responsible if expenditures are not made properly. They also pointed out that the Commission itself should determine what investigations should be made. Argument has been made that it will be difficult to distinguish a proposed investigation with regard to violation of the anti-trust laws from other investigations ordered by Congressional resolution. The order is believed by some to mean the elimination by the Commission of many economic inquiries which have been conducted in the past.

Iron and Steel Markets

ONLY 6 PER CENT LESS

June Pig Iron Output Shows Close Adjustment to Demand

July Slowing Down in Steel—An Effort to Check Price Declines

Pig iron production figures for June wired to THE IRON AGE just as the month ends indicate that the adjustment of output to demand is well advanced, and thus is closely parallel with what has taken place in steel.

At 2,666,160 tons in 30 days, or 88,872 tons a day, against 2,930,807 tons in May, or 94,542 tons a day, the daily average was 6 per cent less in June than in May, whereas May showed a decline of 13 per cent from April.

There was a net loss of but 5 furnaces in June, against 24 in May. The 191 furnaces active on July 1 have an estimated daily capacity of 87,250 tons, against 89,500 tons for the 196 furnaces active on June 1.

Current pig iron output is at a rate 52 per cent greater than that of July, 1924. Then the daily average for the country was 57,500 tons. Thus July opens with a pig iron production nearly 30,000 tons a day (or about 11,000,000 tons a year) more than in the corresponding month of last year.

For the first half of 1925 pig iron production (including charcoal iron) was roundly 19,250,000 tons, against 17,514,000 tons in the first half of 1924 and a record of 21,016,000 tons in the first half of 1923.

This week's developments in the steel market confirm what has been noted for the past six weeks of the comparative steadiness of mill operations. A new feature is the attempt of a number of sellers to check the price declines in products in which weakness has been most pronounced, particularly galvanized sheets and cold-rolled strips. The success of these efforts is yet to be seen.

Steel works and rolling mills will close down for July 4, and the shut-downs of many of the latter will extend for one or two days more. Thus the week will see the usual slowing down in markets as well as in operations. Tin plate and pipe mills, in view of the demand for both products, will come nearest to full running schedules in the next ten days.

July steel production is expected to show a falling off from the June rate, but the common advance estimate is around 60 per cent for the month's operations, against 40 per cent for July last year. In the past week the Steel Corporation has averaged close to 70 per cent.

The situation is structural steel is promising, apart from the low prices that have been coming out. Outstanding in awards of 36,000 tons during the week were two new plants for the Youngstown Sheet & Tube Co., totaling 16,500 tons, one a tin plate mill at Indiana Harbor, Ind., and the other a tube mill addition at Youngstown. The new Manger Hotel in New York, taking 4200 tons, was next in size. Inquiries totaling 24,000 tons include 6300 tons more for New York subway

work and 4000 tons for a Great Northern Railway ore dock at Superior, Wis. There is also the new "Point" bridge at Pittsburgh, which will take 8000 tons.

Great Lakes shipyards look for early business from some of the pending inquiries for freighters, representing a total of six.

About 9800 tons of steel will be required for 2200 car underframes, just awarded by the Great Northern Railway, and the Southern Railway has ordered 1000 underframes. The Missouri, Kansas & Texas will build 900 cars in its own shops.

First among rail inquiries for the coming year is one for 46,500 tons for the Norfolk & Western, on which bids are to be in by July 15.

Railroad buying of cars and locomotives in the first half of 1925 was slightly under half the volume for the same period in 1924, the cars placed numbering about 37,000. Hopes of a pick-up in the steel market in the fall admittedly hang on a pronounced increase in equipment buying.

The French cast iron pipe works that has been actively competing on this side for some months has just taken a 9000-ton contract for Greenville, S. C. Its bid for 2200 tons for Panama was not so successful, but the margin was a matter of cents.

There is further quieting of the pig iron market and the effort of some Central Western producers to get an advance from the low point has had little effect on buyers. Some inquiries have been withdrawn pending developments as to the current rate of foundry operations.

France and Germany are still negotiating on the quotas of imports into Germany. The probable figure for pig iron and semi-finished steel is put at 1,700,000 tons annually, to be handled by the German Raw Steel Association.

French rail makers have formed their own organization, in anticipation of an international syndicate apart from American mills.

Pittsburgh

Efforts to Stabilize Prices with Good Last Half Outlook

PITTSBURGH, June 30.—Fourth of July week usually means some slowing down in steel market activities and in the operating schedules of the steel mills. This year is no exception to the rule, although the transition is very slight, due to the fact that the demand for steel for some time has been purely hand to mouth. A number of sheet mills are idle this week and others will suspend on Friday to remain down all of next week. There will be some decrease in other classes of finishing mills, with the exception of tin plate and pipe mills, where demands are sufficiently large to keep up operations except on the holiday itself.

The production of ingots in this and nearby districts lately has been a little lower than the rate of finishing mill operations and no appreciable let down in output is likely other than that resulting from observance of the holiday.

The interesting event of the week in connection with prices is the development of an effort toward stabilization in those lines where the weakness has been most pronounced. Closely following on the setting up of prices for wire products, which recognized the prices which market experiences had shown could

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

June 30, June 23, June 2, July 1,				June 30, June 23, June 2, July 1,			
1925 1925 1925 1924				1925 1925 1925 1924			
Pig Iron, Per Gross Ton:							
No. 2X, Philadelphia	\$21.26	\$21.26	\$21.26	\$21.26			
No. 2, Valley Furnace	18.50	18.50	18.50	19.00			
No. 2, Southern, Cin'ti†	24.05	24.05	24.05	22.55			
No. 2, Birmingham, Ala.†	19.00	19.00	20.00	18.50			
No. 2, foundry, Chicago*	20.50	20.50	20.50	19.50			
Basic, del'd, eastern Pa.	21.50	21.50	21.50	21.00			
Basic, Valley furnace	18.00	18.00	18.25	19.00			
Valley Bessemer del. P'gh.	20.76	20.76	20.76	22.26			
Malleable, Chicago*	20.50	20.50	20.50	19.50			
Malleable, Valley	18.50	18.50	18.50	19.00			
Gray forge, Pittsburgh	19.76	19.76	19.76	20.26			
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04			
Ferromanganese, furnace	115.00	115.00	115.00	107.50			
Rails, Billets, etc., Per Gross Ton:							
O.-h. rails, heavy, at mill.	\$43.00	\$43.00	\$43.00	\$43.00			
Bess. billets, Pittsburgh	35.00	35.00	35.00	38.00			
O.-h. billets, Pittsburgh	35.00	35.00	35.00	38.00			
O.-h. sheet bars, P'gh.	35.00	35.00	35.00	40.00			
Forging billets, base, P'gh.	40.00	40.00	40.00	43.00			
O.-h. billets, Phila.	40.30	40.30	40.17	43.17			
Wire rods, Pittsburgh	45.00	45.00	46.00	48.00			
Cents Cents Cents Cents							
Skelp, gr. steel, P'gh, lb.	1.90	1.90	2.00	2.15			
Light rails at mill.	1.70	1.70	1.70	1.90			
Finished Iron and Steel,							
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents			
Iron bars, Philadelphia	2.22	2.22	2.22	2.42			
Iron bars, Chicago	2.00	2.00	2.05	2.20			
Steel bars, Pittsburgh	2.00	2.00	2.00	2.15			
Steel bars, Chicago	2.10	2.10	2.10	2.25			
Steel bars, New York	2.34	2.34	2.34	2.49			
Tank plates, Pittsburgh	1.90	1.90	2.00	2.15			
Tank plates, Chicago	2.10	2.14	2.20	2.25			
Tank plates, New York	2.14	2.14	2.24	2.24			
Beams, Pittsburgh	2.00	2.00	2.00	2.15			
Beams, Chicago	2.10	2.20	2.20	2.35			
Beams, New York	2.34	2.34	2.34	2.34			
Steel hoops, Pittsburgh	2.40	2.40	2.40	2.75			
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents			
Lake copper, New York	13.50	13.50	13.50	13.75			
Electrolytic copper, refinery	13.50	13.50	13.50	13.75			
Zinc, St. Louis	7.00	7.00	7.00	7.05			
Zinc, New York	7.35	7.35	7.35	7.40			
Lead, St. Louis	7.75	7.75	7.75	8.25			
Lead, New York	8.00	8.00	8.25	8.60			
Tin (Straits), New York	57.00	56.50	56.50	54.87			
Antimony (Asiatic), N. Y.	16.50	16.50	17.00	17.50			
Metals,							
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents			
Lake copper, New York	13.50	13.50	13.50	13.75			
Electrolytic copper, refinery	13.50	13.50	13.50	13.75			
Zinc, St. Louis	7.00	7.00	7.00	7.05			
Zinc, New York	7.35	7.35	7.35	7.40			
Lead, St. Louis	7.75	7.75	7.75	8.25			
Lead, New York	8.00	8.00	8.25	8.60			
Tin (Straits), New York	57.00	56.50	56.50	54.87			
Antimony (Asiatic), N. Y.	16.50	16.50	17.00	17.50			

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

June 30, 1925, Finished Steel, 2.431c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

June 23, 1925, 2.424c.
June 2, 1925, 2.460c.
July 1, 1924, 2.589c.
10-year pre-war average, 1.689c.

June 30, 1925, Pig Iron, \$19.13 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

June 23, 1925, \$19.13
June 2, 1925, 19.42
July 1, 1924, 19.38
10-year pre-war average, 15.72

High	Low
1923 2.824c, April 24 \$30.86, March 20	1924 2.789c, Jan. 15 \$22.88, Feb. 26
1925 2.560c, Jan. 6 \$22.50, Jan. 13	1925 2.444c, June 23 \$19.13, June 23
1924 2.460c, Oct. 14 \$19.21, Nov. 3	1923 2.446c, Jan. 2 \$20.77, Nov. 20

be done, manufacturers of galvanized sheets are endeavoring to establish 4.20c., base, Pittsburgh, as a minimum and have instructed their salesmen that no more business is acceptable at less. It happens that sales of galvanized sheets recently have been made as low as 4c., base, which for some makers was less than actual producing costs. A similar movement is seen in cold rolled strips, makers of which now are trying to reestablish 3.75c., base, Pittsburgh, following a period of very active competition for business, which carried the price on large lots more than \$5 a ton below that level.

Buyers generally are following the practice of using railroad cars as warehouses and are getting such quick delivery even on the most exacting specifications

they do not have to carry stocks of any considerable size. It is not disputed now that the heavy selling movement of last November and December practically supplied the requirements of the country for the first half of year, rather than for the first quarter, as had been supposed. Ability of buyers to stretch their low priced winter purchases into the second quarter explains the inability of the manufacturers successfully to advance their prices.

Looking ahead to the last half of the year, the trade is hopeful that the railroads are storing up orders rather than being permanently pledged to a policy of economy. There are hopes of a good business in the agricultural implement industry and that idea is

encouraged by the fact that some rather good business in sheets and cold finished steel bars have already developed from that source. Consumption of oil is on the increase and this lends cheerfulness to the outlook for oil country pipe business. The primary materials markets are again quiet. Pig iron producers have been fairly successful in obtaining the recent advance of 50c. on a ton of foundry iron on small tonnages, but on lots running 500 tons or more the effort met resistance. It is difficult to interest consumers of scrap in supplies at present prices. The coke market is so easy that there is not much doubt that it hampers the effort of pig iron producers to secure higher prices.

Pig Iron.—Altogether it has been a quiet week in this market, although the total turnover would make a favorable comparison with that of the week immediately preceding the big sales in early June. A good many small lot tonnages of foundry iron have changed hands and as a rule producers have not had to shade \$18.50, Valley furnace, for the base grade on these 100 to 200-ton sales. Getting that price on lots of 500 tons or more, however, has been difficult, and there is some testimony that business has been lost at that figure. We note one sale of 500 tons of No. 2 foundry for third quarter shipment to a Blairsville, Pa., consumer at a delivered price that figures back to close to \$18 at Valley furnace, while a New Castle, Pa., melter appears to have been successful in securing iron on an offer of \$18, Valley furnace. The National Roll & Foundry Co., Avonmore, Pa., is in the market for 500 tons of No. 2 iron for third quarter shipment. A few fair sized sales of Bessemer iron are noted at \$19, Valley furnace, but basic at \$18, Valley furnace, still is untested. The furnace of the Sharpsville Furnace Co., Sharpsville, Pa., will resume production of iron July 6. The furnace of the Stewart Iron Co., Sharon, Pa., ceases production this week. The numerical average of the furnaces in and out of production in this and nearby districts is about 50 per cent, but it is probable that actual production is somewhat higher than that since the furnaces active mostly are large ones. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnaces in June \$19, as compared with \$19.81 in May and of basic \$18 for June compared with \$18.50 in May.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$18.00
Bessemer	19.00
Gray forge	18.00
No. 2 foundry	18.50
No. 3 foundry	18.00
Malleable	18.50
Low phosphorus, copper free	\$27.75 to 28.00

Ferroalloys.—Fair demand is noted for small lots of ferromanganese for early delivery, and as spot supplies of German material appear to have been cleaned up and there is no competition from resale offerings, sellers find sales at the full market quotation less difficult. Some good-sized tonnages of spiegeleisen have been closed for third quarter and last-half delivery at \$32 to \$33 for average 20 per cent material; on alloy of lower manganese content the price range is \$31 to \$32, according to the size of the order. New business in 50 per cent ferrosilicon is slack, but there is a fair movement on old orders. Prices are given on page 49.

Semi-Finished Steel.—Buyers and sellers still are apart on prices of sheet bars and not much third quarter business has been done, although the end of the second quarter is here. It is probable there will be only moderate engagement of sheet mills over the next two weeks and lack of anxiety on the part of finishing mill owners who buy rather than make their steel is accountable to that fact. Sheet bar makers still hold to \$35, Pittsburgh or Youngstown. The price must be regarded as firm, since it appears to have withstood the test of bids of \$33. Billet and slab prices are irregular, but Pittsburgh producers disclaim having gone below \$35, despite sales in the Youngstown district \$1.50 a ton less. One third-quarter slab contract, amounting to about 10,000 tons, to a local strip maker, is reported at \$35, Pittsburgh. There is almost no open market activity in skelp. Wire rods do not seem to be moving with any greater snap at the lower price recently an-

nounced than they did at the former quotation. Prices are given on page 49.

Steel and Iron Bars.—The steel bar market here is firm at 2c., base, and there is no sign that this base will be disturbed on third quarter business. The current demand is far from heavy and yet the day-to-day orders are sufficient to give the mills fairly good, although frequently changed, schedules. Changing the mill schedules to meet the demand is costly and is one reason for price firmness. Buyers of bars for further working and manufacture are not exerting any pressure for lower prices; indeed, some of them prefer that the present price hold for its effect upon prices of secondary products. Iron bars are holding at recent prices, although the demand is steady rather than active. Prices are given on page 48.

Plates.—Only on small tonnages does 1.90c., Pittsburgh, obtain and only within the area where Pittsburgh district mills have an advantage of freight over outside mills. It is claimed that a round tonnage would bring out a lower figure, as mill capacity is not well engaged. Line pipe business is providing some employment of plate mills, as are also recent barge orders, but the need of railroad car business is felt. One local car building plant is idle and another is running only part time. Prices are given on page 48.

Sheets.—The first sign of a change for the better in the price situation is seen in a notification to salesmen by several producers of a withdrawal of prices lower than 4.20c., base, Pittsburgh, on galvanized sheets. This grade has been commonly quoted at 4.15c., base, on ordinary tonnages and in some cases where the order has been attractive, as low as 4c., base, has been done. There is no other explanation of the low prices than competition, which now appears to have abated upon realization of the loss entailed. There is not yet much sign of stabilization in prices of other finishes of sheets and because of uncertainty as to whether the market is at a bottom, purchases are moderate and in keeping with the known requirements of consumers. This week will see a considerable curtailment of production, as a number of mills are down this week in the Youngstown district and others will suspend next Friday to be down over next week. Prices are given on page 48.

Tin Plate.—Conditions do not change much. While new business is light, most makers are well supplied with contracts and specifications against them, since the outlook continues favorable to a big pack of fruits and vegetables and the container manufacturers are preparing accordingly. Capacity is probably 80 per cent engaged. The price situation is as it has been recently, with \$5.50 per base box, Pittsburgh, on standard cokes for domestic account regarded as the regular price, but, as is well known, that quotation is subject to preferentials to large users and it might be shaded on new business by some mills not heavily supplied with contract business.

Wire Products.—Recent price revisions appear to have created much more stability than previously was noted, and while the market still lacks activity, competition for business is reduced by the fact that manufacturers regard present prices as too close to costs. There was some confusion a week ago as to the price of plain bright wire, but it can now be said that this product was not affected by the change, which applied only to nails and those products keyed to nails, or staples and barbed wire. Coated nails were marked down arbitrarily to a price based on what market experiences had proved could be done. There has been no change in woven wire fence. Prices are given on page 48.

Rails and Track Supplies.—The railroads not only are buying equipment stintingly, but lately they have been holding up shipments on rail contracts. They are not, of course, buying spikes and other track supplies, since apparently there has been some modification of the track laying programs. Light rails are as dull as ever. Prices show no change; they are given on page 48.

Structural Material.—The Pittsburgh district market still is quotable at 2c., base, on large structural

shapes. Beyond the limits of this area, the price is determined by the competition. Mill backlogs are low, judging by the fact that some will go very close to the mill base price to get tonnages of a size ordinarily placed with warehouses. Fabricating shops are fairly busy but at the expense of order books and the desire for new business results in low and unprofitable prices.

The contract for the foundations for the New Point bridge in Pittsburgh has been let and the steel for this bridge amounting to 8000 tons is expected to be placed in the next 30 days. Plain material prices are given on page 48.

Bolts, Nuts and Rivets.—Bolt and nut prices are holding surprisingly well, seeing that demand at best is only fairly active. Manufacturers feel that prices are high only by comparison with the very low levels of a year ago and then it is claimed factory costs were not being secured. Rivet prices are subject to some shading on large lots for early delivery, but on ordinary lots and contracts, the market is firm at \$2.50, base, per 100 lb. for large and 70 and 10 per cent off list for small, f.o.b. Pittsburgh. Prices and discounts are given on page 49.

Hot Rolled Flats.—A price of 2.30c. base has appeared on bands and is disturbing to the maintenance of 2.40c., which has held very well for some time. In other directions the market is steady and the decline in the production of automobiles has not been sufficient materially to affect the demand. Prices are given on page 48.

Cold Rolled Strips.—There is some evidence of an abatement of the competition for business which has forced down prices to cost and in some cases below. The effort now is to establish the market at 3.75c., base, Pittsburgh or Cleveland. That price until this week has been little more than a quotation and large tonnages have sold \$5 a ton or more lower.

Cold-Finished Steel Bars and Shafting.—In point of business the market is reasonably satisfactory. It would be more satisfactory, of course, if buyers, particularly the automobile parts makers, were less disposed to use the railroad cars as warehouses and would place orders a little in advance of their requirements. It is said that if buyers had to go to the warehouses for some of their requirements and pay the warehouse prices, they would order ahead, but they do not have to do so just now, as capacity is ample and there are several producers who want business badly enough to meet exacting delivery specifications. On ordinary tonnages and contracts, the market remains quotable at 2.60c., base, Pittsburgh.

Tubular Goods.—The pipe market still is good. Canvas of plants in this and nearby districts indicates that more than 80 per cent of the pipe furnaces are engaged and it is probable that production is well up to that rate, since the heaviest employment is of the lapweld furnaces, with constitute more than 60 per cent of the tonnage capacity. This is accounted for by a good demand for oil well goods, stimulated by the fact that the demand for oil is growing and necessitating more drilling. Standard pipe business is not up to the rate of the early part of the year, but is good by comparison with other recent years at this season. Mill discounts, established more than two years ago, are well maintained. There is only a fair demand for boiler tubes but reasonable price steadiness in the face of the fact that production is so large in relation to consuming outlets. Demand for mechanical tubing holds up well. Discounts are given on page 48.

Coal and Coke.—The furnace coke market still is favorable to buyers. Spot tonnages are hard to sell at more than \$2.75 per net ton at Connellsville ovens, and it is possible that the producers with some loaded cars might be induced to let go for less, if buyers are interested enough to make an offer. Connellsville producers do not seem disposed to go below \$3 per net ton at ovens on third quarter and last-half tonnages, but with the Valley steel companies which maintain by-product plants anxious for such business at \$2.75, Connellsville base, there is not much possibility for the

Connellsville operators to do business at their price. The Sharpsville furnace which goes into production next Monday will run on by-product oven coke. There are no signs of resumption in the immediate future by any of the other Valley furnaces, which usually run on beehive oven coke. Spot foundry coke still is quotable at \$3.75 to \$4.25 per net ton at ovens for selected hand drawn coke. The coal market in this district is not very brisk. Practically all of the union mines are down and Lake business is being supplied from outside non-union fields. The Bethlehem Steel Co. in the past week suspended operations at its union mines in Washington county. Prices are given on page 49.

Old Material.—The market again has quieted down, following the recent activity in the open-hearth grades. There is no occasion to change prices of these grades, because, with a lighter demand, there are lighter offerings and no selling pressure. Interest in the foundry grades is low. Turnings are slow in this district. The principal user of this grade is bidding only \$12.50, but no sales are noted at that low, the lowest being \$12.75, this on a small sale to a dealer short of the market. The Pennsylvania Railroad scrap list for July is a relatively small one, amounting to only slightly more than 30,000 net tons.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel	\$17.50 to \$18.00
No. 1 cast, cupola size	17.00 to 17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.00 to 19.00
Compressed sheet steel	16.50
Bundled sheets, sides and ends..	15.50
Railroad knuckles and couplers..	19.50 to 20.00
Railroad coil and leaf springs..	19.50 to 20.00
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plate and other material	21.00 to 21.50
Railroad malleable	17.00 to 17.50
Steel car axles	20.00 to 20.50
Cast iron wheels	17.00 to 17.50
Rolled steel wheels	19.50 to 20.00
Machine shop turnings	12.75 to 13.25
Short shoveling turnings	12.75 to 13.25
Sheet bar crops	20.00 to 20.50
Heavy steel axle turnings	16.50 to 17.00
Short mixed borings and turnings	12.50 to 13.00
Heavy breakable cast	15.00 to 15.50
Stove plate	13.50 to 14.00
Cast iron borings	12.75 to 13.25
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	17.00 to 17.50

BIDS FOR STEEL VESSELS

Show Wide Range in Valuation, Also Limiting Conditions

WASHINGTON, June 30.—The name of Henry Ford did not appear among the list of 22 bidders for the 200 steel cargo vessels opened here today by the Shipping Board. The Boston Iron & Metal Co., Baltimore, only bidder to make an offer for the entire lot, bid \$1,370,000.

The General Metal Supply Co., Oakland, Cal., submitted a bid for 193 vessels under varying conditions, the price ranging from \$4,200 to \$6,800 a vessel.

A bid was received from the Newport News Shipbuilding & Dry Dock Co. on 110 ships tied up in the James River near Norfolk, this offer ranging from \$649,000 to \$699,000 under varying conditions.

The Perry-Buxton-Doane Co., Philadelphia, offered \$276,780 for 171 ships.

Other bids covered varying numbers of ships, from one to fifty. These bidders included the Sun Shipbuilding & Dry Dock Co., Chester, Pa.; American Ship Breaking Co., New York; B. L. Stafford, New York; Federal Shipbuilding Co., New York; Waterside Salvage Corporation, New York; Charles A. Jording, Baltimore; Sparrows Point Shipwrecking Co. of Maryland.

The Union Shipbuilding Co., Baltimore, offered \$6,000 each for 50 vessels. The Baltimore & Carolina Steamship Co. offered \$13,500 cash for six Lake boats.

Chicago

Consumption Maintained—Mill Operations Tapering Off

CHICAGO, June 30.—The most encouraging feature of the steel market lies in the fact that consumers' inventories are low. As yet, however, buying has been confined to small lots for early shipment and there is little propensity to contract through the third quarter. The caution which has been so prevalent among users is not an indication of decreased consumption. On the contrary, in most lines, operations continue at a satisfactory rate and there is no unemployment problem. The absence of railroad buying is the one disconcerting factor. Purchases of rolling stock are almost negligible and inquiries are few, although it is rumored that the Southern Pacific is considering a car program. Builders of freight cars in this district have work which will insure operations into August but beyond that there is nothing in prospect.

Meanwhile mill operations are gradually tapering off, with the likelihood that July will see still further curtailment. The steel output of the leading local interest is now below 80 per cent of ingot capacity. The operations of steel works blast furnaces are unchanged, although an inland stack will shortly be banked for about a week for repairs. This will result in a corresponding contraction in that company's steel output to a 70 to 75 per cent basis.

The pressure of competition from the East is still felt in various lines, particularly in plates and shapes, which have receded to 2.10c., Chicago. Sheets, wire products and cold rolled strip, which have been weak for some time, have given no further ground. In fact, producers are making a strenuous effort to put them on a more stable basis. In this connection it is a matter of comment that as mills become reconciled to the inevitability of reduced operations, there is less incentive to make price concessions to sustain output.

Ferroalloys.—A local buyer is inquiring for 600 tons of spiegeleisen. This commodity is said to have advanced \$1 a ton to \$39.04, delivered, but in the absence of sales the quotation is untested. Several carlots of ferromanganese have brought \$115, seaboard.

We quote 80 per cent ferromanganese, \$122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$38.04 to \$39.04, delivered.

Pig Iron.—While prices have not declined, the market situation cannot be described as strong. There is still a considerable number of buyers who have not covered their wants, and they are watching developments very closely. Two uncertain factors are being followed for their possible event on the local situation: First, the future course of prices in other market centers; second, the operations of steel plants. If steel output undergoes a sharp recession, it is conceivable that more iron from steel works blast furnaces would find its way to the open market. Against this is the possibility that one and possibly two local steel works stacks will be forced to blow out. Iron has been booked during the week at \$20.50, base local furnace, one lot of as large as 1800 tons of foundry iron going at that price. Sellers, however, are finding it necessary to press the market for sales to a greater extent than had been anticipated. There has been further localization of sales. For the past few weeks Wisconsin producers have been selling at \$20.50, furnace, and now the Duluth maker is quoting \$21, base furnace. Here and there some good sized inquiries have appeared. An Illinois melter is inquiring for 1800 to 3000 tons of foundry and malleable iron for the last quarter. A northern Indiana user wants 1000 tons of foundry. A silvery producer has advanced prices \$1 a ton, but this change is not yet general. Low phosphorus is available at \$31.50, delivered. Electric ferrosilicon, 14 to 16

per cent, has been reduced to \$42.50, delivered. The Thomas furnace, Milwaukee, will blow in about July 15.

Quotations on Northern foundry, high phosphorus, malleable and basic irons are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	\$20.50
Northern No. 1 foundry, sil. 2.25 to 2.75	\$20.50 to 21.00
Malleable, not over 2.25 sil.	20.50
Basic	19.50 to 20.00
High phosphorus	20.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	22.18 to 22.68
Low phosphorus, sil. 1 to 2 per cent, copper free	31.50
Silvery, sil. 8 per cent	29.79
Electric ferrosilicon, 14 to 16 per cent	42.50

Bars.—Soft steel bars are firm at 2.10c., Chicago. Specifications are liberal, particularly from the automobile and farm implement industries, and orders for prompt shipment are numerous. Consumers' stocks are low and as yet there has been little contracting for third quarter. It is for this reason that some observers feel that a summer buying movement may eventuate this year. Bar iron mills have little tonnage on the books and are operating intermittently. It is hoped, however, that demand will revive after the railroads close their books for the fiscal year ended June 30. Rail steel bar mills are still booking a fair tonnage from implement and bed makers and for reinforcing work. An unusually heavy demand for steel fence posts is looked for, in view of the fact that farmers have neglected their fences for several years.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 2c. to 2.10c., Chicago; rail steel, 2c. to 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Plates.—With the mills greatly in need of tonnage, the price situation shows no signs of improvement. The Great Northern has bought 2200 steel underframes requiring 10,000 tons of steel, which will be rolled here. Chicago producers have received orders for 3000 tons of plates for oil storage tanks. The Pennsylvania Car Co. is figuring on steel barges, calling for 1800 tons, and while it is likely that these will be built at the company's Sharon, Pa., plant, they may be transferred to Kansas City, in which case the steel may be furnished from Chicago. It is rumored that the Southern Pacific is considering the purchase of considerable freight equipment.

The mill quotation is 2.10c. to 2.20c., Chicago. Jobbers quote 3.10c. for plate out of stock.

Structural Material.—The Youngstown Sheet & Tube Co. has awarded 8500 tons for a tin plate mill at Indiana Harbor and 8000 tons for a tube mill at Youngstown to the McClintic-Marshall Co. This is the outstanding award in an otherwise quiet week. The financing of the Stevens Hotel, Chicago, assures the early release for rolling of 18,000 tons, which was awarded some time ago to the American Bridge Co. Plain material prices are unsteady.

The mill quotation on plain material is 2.10c. to 2.20c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bolts, Nuts and Rivets.—Bolt and nut quotations are holding steadily and specifications, while not yet heavy, are improving. Liberal releases continue to come from the automotive and implement industries. Rivet prices appear to be holding their own fairly well at \$2.65 per 100 lb. on large sizes and at 70 and 10 and 5 to 70 and 10 off for small.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to $\frac{3}{8}$ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to $\frac{3}{8}$ x 4 in., 50 off; larger sizes, 50 off; hot-pressed nuts, squares, tapped or blank, \$3.50 off; hot-pressed nuts, hexagons, tapped or blank, \$4 off; coach or lag screws, 60 per cent off.

Rails and Track Supplies.—The Chesapeake & Ohio has placed 7500 kegs of spikes with the Tredegar Co., Richmond, Va. The Wabash has bought 1000 tons of

tie plates from an undisclosed source. The Missouri Pacific has closed for spikes, of which 2000 kegs went to the Joliet mill. Orders for track supplies, particularly in small and medium-sized lots, are more numerous. The railroads are also specifying more freely against their rail contracts.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Sheets.—Inquiries are more numerous and prices have given no further ground. In fact, mills are showing increasing resistance to the pressure for concessions and in some instances have advanced their quotations. This is particularly true of galvanized.

Chicago delivered prices from mill are 3.25c. to 3.35c. for No. 28 black, 2.40c. to 2.50c. for No. 10 blue annealed and 4.30c. to 4.40c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4c. base for black, and 5c. base for galvanized.

Wire Products.—Buyers' stocks are generally very low and for that reason mills look for better business with the return of stability in prices. June is never an active month in the wire trade and bookings of producers this year compare favorably with those for the same month in previous years. Prices on wire nails range from \$2.70 to \$2.75, Chicago district mills, and plain wire from \$2.55 to \$2.60. Cement coated nails are quoted at \$1.95, district mill.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, \$3.05 per 100 lb.; common wire nails, \$3.15 per keg; cement coated nails, \$2.25.

Warehouse Prices.—Local jobbers have reduced cement coated nails \$4 a ton to \$2.25 per keg, Chicago warehouse. A survey of warehouse business for the first half of the year indicates that it was nearly equal to that for the same period in 1924.

Reinforcing Bars.—Notwithstanding the large amount of building work pending and the continual appearance of attractive new inquiries, lettings have fallen off. Competition for business has become even keener and prices have grown weaker, thereby encouraging delay in the award of tonnage. Frequent shading of 2.60c., Chicago warehouse, on billet reinforcing bars is reported. Considerable tonnage continues to be placed in rail steel bars. Lettings include:

Illinois State highway work, 250 tons, to Concrete Steel Co.

Edward Coles public school, Chicago, 150 tons of rail steel, to Calumet Steel Co.

Nathan Hale public school, Chicago, 150 tons of rail steel, to Calumet Steel Co.

Russell apartment building, Detroit, 210 tons, to McRae Steel Co.

Home Bank building, Chicago, 130 tons, to Concrete Engineering Co.

Pending work includes:

Ideal Book Builders building, Chicago, 125 tons, H. C. Miller, Chicago, architect.

Parke-Davis Drug Co., Detroit, warehouse and office building, Chicago, 300 tons, Thielbar & Fugard, Chicago, architects.

Guardian Angel School, Joliet, Ill., 175 tons, general contract awarded to Immel Construction Co., Fond du Lac, Wis.

Apartment building for Stresenreuter Bros., Chicago, 150 tons.

Princeton, Ill., high school, 100 tons, general contract awarded to Anton Zwack, Dubuque, Iowa.

Dewitt Clinton public school, Chicago, 150 tons, general contract awarded to Great Lakes Engineering Co.

Olivet Institute, Chicago, 100 tons, general contract awarded to H. D. Moreland Co., Chicago.

Riverside-Brookfield, Ill., high school, 100 tons, general contract awarded to Fitzgerald Construction Co., Chicago.

Cast Iron Pipe.—The market is quiet, but pipe makers look for a heavy demand, particularly in 6, 8 and 12 in. from Chicago and suburbs. An unusually large number of subdivisions have been laid out in this vicinity and in most cases the water pipe is still to be bought. Chicago will receive bids July 3 on 200 tons of 3 to 24-in. fittings. Prices are largely untested, but quotations range from \$40 to \$41.50, base Birmingham, for 6 in. and larger, with some sellers asking as high as \$42.

We quote per net ton, f.o.b. Chicago, as follows:

Water pipe, 4-in., \$51.70 to \$52.20; 6-in. and over, \$47.70 to \$48.20; Class A and gas pipe, \$4 extra.

Coke.—Local by-product foundry coke has been reduced 50c. a ton to \$10.25, delivered in the Chicago switching district. For outside delivery the quotation is \$9.75, f.o.b., ovens.

Old Material.—Prices have again given way, although on relatively few grades. The general tone of the market is still weak, however, notwithstanding evidences of strength in other markets. A large independent mill has closed for a few thousand tons of heavy melting at \$15.75 delivered, a recession of 25c. Thus far dealers have been unable to cover at less than \$15.50. The same mill closed for a liberal tonnage of rerolling rails at \$17.75, delivered. Otherwise consumer purchases have been largely limited to small lots. Nevertheless it is to be noted that users are taking more interest in scrap and are willing to buy at a price. The relatively poor production prospects of the mills are the chief damper on the market. Railroad offerings include the Northwestern, 6500 tons; the Santa Fe, 2400 tons; the New York Central, 7500 tons; the Elgin, Joliet & Eastern, 500 tons; the Erie, a blank list.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

	Per Gross Ton
Iron rails	\$17.00 to \$17.50
Cast iron car wheels	17.00 to 17.50
Relaying rails, 56 and 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	18.25 to 18.75
Railroad tires, charging box size	18.50 to 19.00
Railroad leaf springs, cut apart	18.50 to 19.00
Rails for rolling	17.25 to 17.75
Steel rails, less than 3 ft.	18.00 to 18.50
Heavy melting steel	15.50 to 16.00
Frogs, switches and guards cut apart	16.00 to 16.50
Shoveling steel	15.25 to 15.75
Drop forge flashings	11.00 to 11.50
Hydraulic compressed sheets	13.00 to 13.50
Axle turnings	12.75 to 13.25
Steel angle bars	17.25 to 17.75
Steel knuckles and couplers	18.50 to 19.00
Coil springs	19.50 to 20.00
Low phos. punchings	17.00 to 17.50
Machine shop turnings	9.00 to 9.50
Cast borings	10.50 to 11.00
Short shoveling turnings	10.50 to 11.00
Railroad malleable	17.50 to 18.00
Agricultural malleable	17.00 to 17.50
	Per Net Ton
Iron angle and splice bars	16.50 to 17.00
Iron arch bars and transoms	20.00 to 20.50
Iron car axles	26.00 to 26.50
Steel car axles	16.50 to 17.00
No. 1 busheling	11.00 to 11.50
No. 2 busheling	8.50 to 9.00
Pipes and flues	10.50 to 11.50
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	13.75 to 14.25
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	16.00 to 16.50
No. 1 agricultural cast	16.00 to 16.50
Locomotive tires, smooth	16.00 to 16.50
Stove plate	14.00 to 14.50
Grate bars	14.00 to 14.50
Brake shoes	14.00 to 14.50

Secures Pacific Spring Co.

SAN FRANCISCO, June 26.—With the merger of the L. A. Young Industries, Inc., Detroit, Mich., and the Pacific Spring Co., Oakland, Cal., the California city yesterday became the Pacific Coast headquarters of one of the large spring manufacturing concerns of the country, according to Curtis Wright, local production manager and A. S. Wickersham, sales manager of the local company. The new firm will be known as the Pacific Spring Co. of California, Division of the L. A. Young Industries, Inc.

From the Oakland office the company will handle all Pacific Coast and Asiatic export trade. Plans are being made to increase the capacity of the local plant for the manufacture of automobile seat springs, bed springs, upholstering springs, coils for mechanical purposes and other articles. Between 100 to 200 men will be required to operate the plant. There will be no change in the policy of the Pacific Spring Co., which has been manufacturing springs for the Fisher Body Co., California Transportation Co., and the Fageol Motors Co.

New York

France to Supply 9000 Tons of Cast Iron Pipe—Summer Quietness in Pig Iron

NEW YORK, June 30.—The pig iron market is much quieter both in respect to transactions and new inquiry. Estimates of sales through local offices for the week run considerably under 10,000 tons. Several large consumers who had purchases for the remainder of the year under consideration decided to defer contracting seeing no evidence of an early stiffening of prices. Reports of foundry operations vary. Busy jobbing foundries are the exception, but there are no considerable stocks of pig iron in foundry yards and in a few cases small lot shipments are being expedited. July and August promise to be quiet months both in foundry operations in districts tributary to New York and in new buying of pig iron. September is generally fixed on as a time of renewed activity. One northern New York furnace is likely to go in at an early date, producing low phosphorus iron. Operations of Eastern furnaces promise little change. Foreign iron is figuring to but a small extent in current business, though the market seems to be adjusted to an import movement averaging about 10,000 tons a month from India and relatively small amounts from Holland. Indian iron is still available at \$20 for No. 2 plain laid down at Philadelphia or New York. Buffalo iron is selling on a basis of \$19 for the most part and eastern Pennsylvania iron at \$20 at furnace. An exceptional concession was made on a recent large sale of pipe iron based on \$19.50.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	\$22.52 to \$22.77
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	23.02 to 23.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.52 to 23.02
Buffalo, sil. 1.75 to 2.25	23.91
No. 2 Virginia, sil. 1.75 to 2.25	28.44

Ferroalloys.—Business in ferromanganese is confined to small and carload lots, including several 100 to 200-ton lots. New inquiry is of the same proportions, there being no large business before the market. In spiegeleisen there are inquiries for 500 to 1000 tons, but sales are confined to small and carload lots. The price situation in both markets is unchanged.

Cast-Iron Pipe.—Current demand for bell and spigot pipe is light but makers are well booked for several months on certain of the smaller sizes, particularly 6 and 8-in. and prices are holding firmly to the level of recent weeks, except where sellers are in competition with foreign cast iron pipe. Greenville, S. C., which was in the market for 17,000 tons of 30-in. pipe, accepted an alternate bid on lighter weight pipe, obtaining the required mileage with 13,700 tons and accessories. Award was made of 9000 tons to B. Nicoll & Co., representing the Pont-a-Mousson works in France; 4300 tons to the Standard Cast Iron Pipe & Foundry Co. and 400 tons and all accessories to the United States Cast Iron Pipe & Foundry Co. The soil pipe market continues quiet with large discounts prevailing.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$50.60 to \$51.60; 4-in. and 5-in., \$55.60 to \$56.60; 3-in., \$65.60 to \$66.60, with \$5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 57½ to 60 per cent off list; heavy, 67½ to 70 per cent off list.

Finished Iron and Steel.—Some steel prices have gone so low that points of resistance are noticeable. This is true of sheets, cold rolled strips and wire. On sheets several mills have declared they will not go lower than 4.10c. on galvanized, 3.10c. on black and 2.30c. on blue annealed, yet these are not the lowest points that have been reached. In a few cases galvanized sheets have been sold as low as 4c., black sheets at 3c. and blue annealed at 2.25c. Similarly on tin mill black plate some producers will not sell below 3.10c.,

though 3c., Pittsburgh, has been the price effective on certain sales. Several of the larger makers of cold rolled strips have announced formally to their customers that they will not take orders at less than 4c., Pittsburgh, though fair-sized lots have been going at 3.50c., and a large sale brought out a price of 3.45c. about two weeks ago. One of the leading independent makers of wire products sent a notice to its customers of a reduction to 2.40c. on plain wire, but this price was quickly withdrawn, and this company, in common with all of the principal makers, is holding firmly to 2.50c. In fact, there appear to be no variations this week from the 2.50c. figure on wire, although nails, staples and barbed wire were reduced. There are more frequent indications of a disinclination on the part of producers to take business which is not profitable. The common run of plate orders does not bring out anything below 1.90c., Pittsburgh, but some of the more attractive orders are at 1.85c. and 1.80c., though exceptional. On a 2500-ton order recently placed the price is reported to have been 1.75c., Pittsburgh. Shapes continue at 1.90c. to 2c. Bars are firm at 2c. One of the largest pipe jobbers in New York has put into effect a slight advance on steel pipe, and a further stiffening of jobbers' prices is expected. Jobbers have been selling at close margins in anticipation of a reduction in mill prices, but since this now does not appear likely they may raise their prices. Structural steel work continues in fairly good volume, but fabricated steel prices are still low, competition being keen.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c.; plates, 2.14c. to 2.24c.; structural shapes, 2.24c. to 2.34c.

Warehouse Business.—Demand is spasmodic, light in most lines, but good in structural steel and sheets, some buyers stocking up on the latter since they have been able to get attractive concessions. Black sheets are going at as low as 4c. base and galvanized at 5c. to 5.40c. Jobbers found that last week's reductions on cold-finished shafting and screw stock went too low, hence there has been a readjustment to 4c. for rounds and hexagons and 4.50c. for squares and flats. Prices on bolts and screws are firm. In many of the commonly good movers prices are weak, particularly so in sheets. For prices, see page 66. We quote boiler tubes per 100 ft. as follows:

Lapwelded steel tubes, 2-in., \$17.33; seamless steel, 2-in., \$20.24; charcoal iron, 2-in., \$25; 4-in., \$67.

Old Material.—Activity is at a low ebb on all grades. There is an inclination among consumers to delay shipments until after the holiday, mills at Birdsboro and Harrisburg having requested postponement of shipments. The market shows a slight undercurrent of weakness and brokers are unwilling to pay in excess of \$15 per ton delivered eastern Pennsylvania on No. 1 heavy melting steel. Although shipments of borings and turnings to Birdsboro are temporarily held up, tonnages are still going forward to Bethlehem and Conshohocken. Stove plate is unchanged at \$13.50 per ton, delivered Phoenixville or Harrisburg consumers and \$13.50 per ton delivered West Mahwah, N. J., or Bridgeport, Conn., consumers.

Buying prices per gross ton New York follow:	
Heavy melting steel, yard.....	\$10.00 to \$10.50
Heavy melting steel, railroad or equivalent.....	11.75 to 12.25
Rails for rolling.....	12.25 to 12.75
Relaying rails, nominal.....	21.00 to 22.00
Steel car axles.....	18.50 to 19.50
Iron car axles.....	23.00 to 24.00
No. 1 railroad wrought.....	13.00 to 13.50
Forge fire.....	10.25 to 10.75
No. 1 yard wrought, long.....	12.00 to 12.50
Cast borings (steel mill).....	9.00 to 9.50
Cast borings (chemical).....	13.00 to 13.50
Machine shop turnings.....	9.00 to 9.50
Mixed borings and turnings.....	8.50 to 9.00
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	11.75 to 12.25
Stove plate.....	10.00 to 11.50
Locomotive grate bars.....	10.50 to 11.00
Malleable cast (railroad).....	13.00 to 14.00
Cast iron car wheels.....	13.00 to 13.50
No. 1 heavy breakable cast.....	12.25 to 12.75

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:	
No. 1 machinery cast.....	\$16.50 to \$17.00
No. 1 heavy cast (columns, building material, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.).....	14.00 to 14.50

Birmingham

Optimism in Pig Iron and Steel Circles— Pipe Unfilled Tonnage

BIRMINGHAM, June 30.—Sales of pig iron in the South during the past two weeks, being a little more active than for some time, starts the third quarter off with the belief that there will be warrant for steady production. Quotations have been reduced to a \$19 per ton level, No. 2 foundry, but concessions are still intimated. The larger consumers are melting without hesitation and there is a strong outward movement of the various products, cast iron pressure pipe in particular. Basic iron on yards is not looked upon as of consequence in the face of the increased melt. Exportation of a large tonnage of steel, in various shapes, is scheduled for the new month through the port of Mobile.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	\$19.00 to \$20.00
No. 1 foundry, 2.25 to 2.75 sil.	19.50 to 20.50
Basic	20.00
Charcoal, warm blast	30.00

Cast Iron Pipe.—Lettings continue coming in, with the unfilled tonnage for cast iron pressure pipe increasing. The same quotation as for some time is still given, \$40 per ton, for 6-in. and over. Concessions of \$1 per ton will not be hushed.

Finished Steel.—With all plants at practically full speed, and output holding up as well as at any time this year, the steel market of the South shows slight improvement. Schedules are announced for shipment of rails to China and other shapes for export via river from Birmingham through Mobile. Soft steel bars are quoted 2.15c. to 2.25c. Progress on new steel developments in this district is steady.

Coke.—The same conditions obtain as to the coke market in the South as has been noted for several weeks. Foundry coke prices are on a \$5 per ton base.

Old Material.—Scrap iron and steel in the Birmingham district show no strength. Consumption is also about the same, with dealers making preparations for an improved consumption in the near future.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	\$15.00 to \$16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	18.00 to 19.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.50 to 17.00
Car wheels	15.00 to 16.00
Stove plate	13.00 to 14.00
Machine shop turnings	7.00 to 8.00
Cast iron borings	8.00 to 9.00
Rails for rolling	16.50 to 17.00

San Francisco

Mokolumne Bids Sept. 4—Prices Weak— New Business Small

SAN FRANCISCO, June 27 (By Air Mail).—Opening of bids for the Mokolumne River pipe-line job has been postponed by the board of directors of the East Bay Municipal Utility District, Oakland, Cal., from July 20 to Sept. 4, to give Eastern contractors time to make estimates. Plans and specifications, as well as a complete set of bidding schedules showing quantities of materials to be used, are now available. There are several alternative schedules all calling for large quantities of material. Conservative estimates indicate that about 70,000 tons of plates, 225 tons of structural material, 630 tons of reinforcing bars and 110 tons of cast iron pipe will be required, in addition to large quantities of miscellaneous materials and equipment. Legal validation of the bonds is now in the courts.

General business is moderate in volume. Prices con-

tinued weak. The Southern California Gas Co., Los Angeles, has placed 1000 tons of line and standard pipe with an Eastern mill. The Key System Transit Co., Oakland, has placed about 300 tons of 9-in. girder rails with an Eastern mill. Bids will be called in August by the San Joaquin Light & Power Co., Fresno, for 60 to 100 tons of 25, 30, 35 or 40-lb. rails. The Southern Pacific Co. will call bids July 8 for about 100 tons of carriage and stove bolts, and it will close bids June 30 for 96,000 kegs of track spikes and 800 kegs of track bolts. The Southern Pacific Equipment Co. contemplates building 1500 box cars and 500 gondolas at its Sacramento plant, and it is expected to call for about 3000 tons of shapes and plates within the next few weeks.

Pig Iron.—No business of any size has been transacted recently. The Southern Pacific Co. has not yet placed the 500 tons of foundry iron for which it inquired. No new inquiries have come into the market. Prices are weak but unchanged.

*Utah basic	\$27.25 to \$28.25
*Utah foundry, sil.	27.50 to 28.50
**Scotch foundry	28.00 to 30.00
**English foundry	27.00 to 28.00
**Belgian foundry	26.00
**Dutch foundry	25.00
**Indian foundry	26.50
**German foundry	26.50
*Birmingham, Ala., foundry, sil.	29.00 to 30.00
2.75 to 3.25	

*Delivered San Francisco.

**Duty paid, f.o.b. cars San Francisco.

Shapes.—Fresh inquiries call for about 1220 tons. Business closed during the week totaled about 1090 tons. Prices are unchanged, 2.40c. to 2.45c., c.i.f. Coast ports. Heavy foreign material is still quoted 2c. to 2.20c., c.i.f., duty paid, and lighter material is 1.80c. It is understood that the Tropp apartments, Laguna and Pacific Streets, San Francisco, requiring 400 tons, has been postponed. The St. Louis Structural Steel Works took 140 tons for a Government warehouse in the Panama Canal Zone, for which bids were called at Fort Mason, San Francisco. The Virginia Bridge & Iron Works is low bidder for 325 tons for the Chetco River bridge at Brookings, Ore., for the Oregon Highway Commission.

Plates.—Although 2.40c., c.i.f. Coast ports, is still more or less general, 2.35c. is the recognized minimum in the local market, which is very quiet. Only one new inquiry has been developed. The Shell Oil Co. has closed bids for 100 tons for two 8500-bbl. tanks. The Pacific Coast Engineering Co. is low bidder for 125 tons for a 5000-ft. pipe line for Oakland, Cal.

Bars.—The Shell Oil Co. is calling for 130 tons of wire mesh for reinforcing a reservoir at Martinez, Cal. Bar prices are unchanged. Local mills quote soft steel bars at 2.45c. in 100-ton lots, f.o.b. San Francisco, and 2.50c. base per 100 lb. Reinforcing bars out of jobbers' stocks are: 250 tons, 3.25c., base; carload, 3.35c., base; l.c.l., 3.50c. to 3.80c., case. There are numerous small jobs, but only two of more than 100 tons were placed during the week. Those were:

Elmhurst sewer, Elmhurst, Cal., 135 tons, to Badt-Falk & Co.

Theater, Eighth and Market Streets, San Francisco, Cal., 160 tons, to Badt-Falk & Co.

Sheets.—A Los Angeles distributor is understood to have placed 750 tons of galvanized sheets with an unnamed mill at a price between 3.975c. and 4c., Pittsburgh base. B. W. Norton Mfg. Co., Oakland, Cal., was awarded the contract for 1,500,000 automobile license plates by the State Board of Control, for which 500 tons of one-pass black sheets will be required, but the Kettle Mfg. Co., Los Angeles, which has manufactured the plates in previous years, has obtained a temporary restraining order in the Superior Court, alleging that the Oakland firm is physically and financially unable to meet the terms of the contract. The temporary restraining order is returnable July 3. The 560 tons of blue annealed sheets for the Chelan Reclamation District pipe line, Mason, Wash., has been canceled. Wood stave pipe will be used. Prices are the same as last week: Blue annealed sheets, 2.30c. to 2.40c.; black sheets, 3.15c. to 3.20c.; galvanized sheets, 4.10c. to 4.20c., all Pittsburgh base.

Warehouse Business.—Prices are unchanged, although slightly lower quotations prevail in Los Angeles. Business is moderate in volume, and estimates for June indicate that the month's sales average will be larger than the totals for June of last year.

Merchant bars, \$3.30 base per 100 lb.; merchant bars, $\frac{3}{8}$ in. and under, rounds, squares and flats, \$3.80 base, per 100 lb.; soft steel bands, \$4.15 base, per 100 lb.; angles, $\frac{3}{8}$ in. and larger \times $1\frac{1}{2}$ in. to $2\frac{1}{2}$ in., inc., \$3.30 base, per 100 lb.; channels and tees, $\frac{3}{4}$ in. to $2\frac{1}{2}$ in., inc., \$3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, \$3.30 base, per 100 lb.; tees, 3 in. and larger, \$3.30 base, per 100 lb.; universal mill plates, $\frac{1}{4}$ in. and heavier, stock lengths, \$3.30 base, per 100 lb.; spring steel, $\frac{3}{4}$ in. and thicker, \$6.30 base, per 100 lb.; wire nails, \$4 base, per 100 lb.; cement coated nails, \$3 base, per 100 lb.; No. 10 blue annealed sheets, \$4.20 per 100 lb.; No. 28 galvanized sheets, \$6.25 per 100 lb.; No. 28 black sheets, \$5.25 per 100 lb.

Coke.—A shipment of German foundry coke is expected early in July, and is being quoted at \$14 to \$14.50 at incoming dock. A fairly large number of small tonnages have been sold recently in English coke. Prices are unchanged.

English beehive, \$14.50 to \$17 at incoming dock, and English by-product, \$12.50 to \$14; German by-product, \$14 to \$14.50; Birmingham, Ala., by-product, \$19 to \$20 delivered; Wise County, Va., beehive, \$22 delivered.

Cincinnati

Fair Business in Steel—Pig Iron Dull but Stiffening

CINCINNATI, June 30.—The pig iron buying movement has subsided in this territory and the market is quiet at present. Total sales in the past week approximated only 2000 tons. Several orders were booked for 300-ton lots of Northern foundry. Other sales were confined to carload orders. Southern Ohio furnaces are stiffening in their attitude and are beginning to ask \$19.50, Ironton, although practically all of the business during the past week went at \$19, Ironton, which remains as the prevailing price. One furnace in the Ironton district is refusing to take fourth quarter business at present quotations. The silvery market here is weak with a few scattered carload orders being placed. Movement of Tennessee iron is at a low point, with no change reported from the price of \$17.50, Birmingham. Alabama interests are asking from \$18.50 to \$20.50, Birmingham, but these figures are too high for the furnaces to secure business in this market. Little inquiry has developed in the last week. The Louisville & Nashville Railroad is expected to close shortly for 540 tons, divided between charcoal and foundry iron. Two central Ohio melters are each in the market for 300 tons of Northern foundry. A local dealer has booked an order for 50 tons of ferromanganese at \$115, seaboard.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	\$22.55 to \$24.55
Alabama fdy., sil. 2.25 to 2.75	23.05 to 25.05
Tennessee fdy., sil. 1.75 to 2.25	21.55
Southern Ohio silvery, 8 per cent 2.25	28.77
Southern Ohio fdy., sil. 1.75 to 2.25	21.27
Southern Ohio, basic (nominal)	22.27
Southern Ohio, malleable	22.27

Bars, Shapes and Plates.—Sales of bars have improved in the last ten days, but still are confined principally to small tonnages. Consumers are not inclined to purchase stock except for their immediate requirements. There is a considerable volume of small orders coming in from day to day that keeps the market rather active. Prices are apparently firm with 2c., Pittsburgh, the prevailing price on attractive tonnages and 2.10c. being quoted on carload orders. Movement of structural shapes and plates has been accelerated. The Stacey Mfg. Co., Cincinnati, is reported to have placed an order for 1000 tons of plates with a Cleveland mill. A fair volume is attained principally through the large number of small orders that have been booked. Shapes and plates are both quoted at 2c. to 2.10c., Pittsburgh. Fabricators find business quiet.

Sheets.—A fairly good movement continues. Bookings for the first six months of 1925 have run considerably ahead of those during the same period last year. In fact, June has shown an improvement over May. An encouraging sign is seen by sellers in the fact that prices have not descended further in the past two weeks. Black sheets are selling at 3.20c. to 3.30c., Pittsburgh, with some exceptions in the form of lower figures. Galvanized sheets are a little stronger; prices range from 4.20c. to 4.30c., Pittsburgh. Blue annealed has not changed, being 2.30c. to 2.40c., Pittsburgh. Little activity is evident in auto sheets, which remain at 4.25c., Pittsburgh.

Wire Goods.—The mills in the Ironton district are offering both wire and nails at quotations below those that Eastern mills are making. Concessions in the prices have not apparently created more business than normal. Jobbers have a fair stock on hand and are purchasing only sufficient material for present requirements. Common wire nails are quoted at 2.65c., Pittsburgh or Cleveland, by Eastern sellers, but it is reported that the independent mills are offering nails as low as 2.60c., Ironton, or 2.74c. delivered in Cincinnati. Plain wire is also bringing out low prices. It is understood that 2.45c., Ironton, is the bottom price. Eastern mills are holding to 2.50c., Cleveland or Pittsburgh base.

Reinforcing Bars.—Although no important awards have been made in the past week, several attractive jobs are pending. William Miller & Sons, Cincinnati, has the general contract for the new electrical building at the University of Cincinnati. It will buy the bars, which will total about 150 tons. The general contract for the Sacred Heart School, calling for 270 tons, is to be let during the coming week. C. F. Stegner, Second National Bank Building, Cincinnati, is the architect for a new warehouse to be erected in Columbus, Ohio, by the Kroger Grocery & Baking Co., Cincinnati. It is thought that this may take about 400 tons. Sellers have been bidding on a number of small jobs, calling for lots up to 75 tons. Prices on bars from new billets continue to be 2c. to 2.10c. Quotations on rail steel bars are slightly firmer at 1.90c. to 1.95c., mill.

Tin Plate.—Specifications from can manufacturers in this territory have been good. Sellers are quoting \$5.50 per base box, Pittsburgh, but some small lots have sold at \$5.35 during the past week.

Warehouse Business.—Most jobbers report that June has shown a substantial increase over May in the volume of orders, though business has been spotty. Many dealers are closing the first half of the year with their sales sheets revealing a considerable improvement as compared with the first six months of 1924. While the number of orders being booked is fairly good, the bulk of them are small in size. Local jobbers handling nails are now engaged in a price war that has already resulted in the quotations on common wire nails being reduced from \$3.10 to \$2.95 per base keg. There are predictions that within a week the price will go down to \$2.90 and possibly lower. Cement coated nails are also weak and are being sold at \$2.40 per keg. A cut has been made on No. 9 annealed wire, which is now selling at \$3 per 100 lb. Weakness has developed in the hoop market, several jobbers quoting them at 4.10c. to 4.25c. A drop has occurred in cold-rolled products. Rounds and hexagons, on the new basis, are quoted at 3.70c. and squares are selling at 4.20c.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.70c.; squares, 4.20c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 9 annealed wire, \$3.00 per 100 lb.; common wire nails, \$2.95 per keg base; cement coated nails, \$2.40 per keg; chain, \$7.55 per 100 lb. base; large round head rivets, \$3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft., lap welded steel tubes, 2-in., \$18; 4-in., \$38; seamless, 2-in., \$19; 4-in., \$39.

Coke.—Activity has fallen off considerably. It is estimated that production of foundry coke in this territory is approximately 60 per cent of capacity. Specifications for foundry grades are light and the volume of business during June showed a decrease as com-

pared with May. Little interest is being displayed in furnace coke. Although price schedules have not changed, quotations are being shaded in certain instances.

Old Material.—Sluggishness continues. Mills still have sizable stocks on hand and are disinclined to buy more material at present. There have been a few scattered sales of melting steel, but these were negligible. The Big Four Railroad has a small list, including about 1000 tons of melting steel, that closes today. Prices are fairly firm.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton		
Heavy melting steel.....	\$14.00 to \$14.50	
Scrap rails for melting.....	14.00 to 14.50	
Short rails.....	18.00 to 18.50	
Relaying rails.....	28.00 to 28.50	
Rails for rolling.....	15.50 to 16.00	
Old car wheels.....	14.50 to 15.00	
No. 1 locomotive tires.....	17.50 to 18.00	
Railroad malleable.....	16.50 to 17.00	
Agricultural malleable.....	15.50 to 16.00	
Loose sheet clippings.....	10.00 to 10.50	
Champion bundled sheets.....	12.00 to 12.50	

Per Net Ton		
Cast iron borings.....	9.00 to 9.50	
Machine shop turnings.....	8.00 to 8.50	
No. 1 machinery cast.....	18.00 to 18.50	
No. 1 railroad cast.....	16.00 to 16.50	
Iron axles.....	22.50 to 23.00	
No. 1 railroad wrought.....	11.50 to 12.00	
Pipes and flues.....	9.00 to 10.00	
No. 1 busheling.....	10.50 to 11.00	
Mixed busheling.....	9.50 to 10.00	
Burnt cast.....	10.00 to 10.50	
Stove plate.....	10.50 to 11.00	
Brake shoes.....	10.50 to 11.00	

Boston

Pig Iron Sales and Inquiry Small—Prices, if Anything, Easier

BOSTON, June 30.—Pig iron sales reported here the past week approximated 2000 tons, mostly carload to 100-ton lots. The variety of irons sold is somewhat larger than heretofore, including Buffalo, western and eastern Pennsylvania, Virginia, Alabama and India. Buffalo No. 2 plain is now generally \$19 on cars, furnace, but on a large tonnage \$18.50 could be done. No. 2X is generally \$19.50, furnace, although the 50c. differential has been eliminated in recent sales, and even No. 1X has sold at \$19, furnace. Western Pennsylvania iron prices approximate Buffalo, yet the market appears a shade firmer. Eastern Pennsylvania is selling at \$20 to \$21, furnace base, mostly \$20, and Virginia mostly at \$22.50, base. Alabama is \$19, base, with full differentials. Collectively, therefore, iron prices, following a temporary period of firmness, if anything, are easier. Open and private inquiry aggregates 1700 tons. The New England melt of iron is not increasing and most foundries are well covered for the third quarter. Importations of India iron the past fortnight total 6156 tons, all of which is sold. India iron is generally sold on a delivered basis, which figures back to around \$22.50 a ton on dock, duty paid.

We quote delivered prices on the basis of the latest sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25.....	\$23.65 to \$24.65
East. Penn., sil. 2.25 to 2.75.....	24.15 to 25.15
Buffalo, sil. 1.75 to 2.25.....	23.91
Buffalo, sil. 2.25 to 2.75.....	24.41
Virginia, sil. 1.75 to 2.25.....	28.42 to 29.92
Virginia, sil. 2.25 to 2.75.....	28.92 to 30.42
Alabama, sil. 1.75 to 2.25.....	28.60
Alabama, sil. 2.25 to 2.75.....	29.10

Coke.—The New England Coal & Coke Co. and the Providence Gas Co. announce that July specifications against last-half by-product foundry coke contracts will be on a basis of \$11.50 a ton delivered within New England, the same price that has prevailed for several months. Because of the continued unevenness of their business, foundries are specifying on a hand-to-mouth basis. Comparatively few melters are carrying more than a month's supply of fuel.

Old Material.—In point of activity the old material market is just about holding its own. It is neither active nor dull. It would be more active if owners of material were willing to sell, but they are holding

out for higher prices. Mixed price changes are noted in those materials most active. For eastern Pennsylvania delivery some brokers will not pay more than \$10.50 a ton on cars, shipping point, for heavy melting steel, but \$1 more has been paid. For Bridgeport, Conn., the market is \$11 and for Pittsburgh district, \$11.25 to \$11.50 generally. Heavy melting steel, therefore, is about 50c. a ton lower. Scrap rails for Pennsylvania delivery are \$10.50 to \$11, but a Worcester, Mass., mill is reported to have paid \$11 to \$11.50 on cars, shipping point. Machine shop turnings are perhaps 25c. dearer and chemical borings 50c., while rolling mill borings are off 25c. Mixed borings and turnings generally are \$7.50 to \$8, although \$8.25 was paid the past few days. Prices paid for forged flashings take a wide range—\$9 to \$10.50, with the average \$9.50 to \$10. A Norwood, Mass., plant has paid \$13.50 a ton delivered for stove plate. No. 2 machinery cast is in large supply at \$13.50 to \$14 on cars, shipping point, with practically no takers. Demand for No. 1 machinery and textile machinery is at a minimum locally, although small yards outside Boston have no difficulty in making sales.

The following prices are for gross ton lots delivered consuming points:

Textile cast.....	\$20.00 to \$20.50
No. 1 machinery cast.....	18.50 to 19.50
No. 2 machinery cast.....	15.50 to 16.50
Stove plates.....	13.00 to 13.50
Railroad malleable.....	19.00 to 20.00

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$10.50 to \$11.50
No. 1 railroad wrought.....	13.00 to 13.50
No. 1 yard wrought.....	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long).....	11.00 to 11.50
Machine shop turnings.....	8.50 to 8.75
Cast iron borings, chemical.....	11.00 to 11.50
Cast iron borings, rolling mill.....	8.50 to 8.75
Blast furnace borings and turnings.....	7.50 to 8.00
Forged scrap.....	9.50 to 10.00
Bundled skeleton, long.....	8.50 to 9.00
Bundled skeleton, short.....	9.50 to 10.00
Forged flashings.....	9.50 to 10.00
Shaftings.....	17.50 to 18.00
Street car axles.....	17.00 to 17.50
Rails for rerolling.....	12.50 to 13.00
Scrap rails.....	11.00 to 11.50

Buffalo

One Blast Furnace May Be Added to the Ten Now Active

BUFFALO, June 29.—While prices lower than \$19 base have been encountered during the week, it is probable that this figure represents the going base. One local maker announces a \$19 base, with \$19.50 for 2.25 to 2.75 per cent silicon and \$20.50 for 2.75 to 3.25 per cent silicon for prompt and third-quarter delivery. It is believed that, if lower than \$19 has been done, it has been on malleable. Current inquiry is for about 10,000 tons. A railroad equipment maker sought 2500 tons of foundry and malleable. It is believed that the Massey-Harris inquiry for 2000 tons, listed previously, has been satisfied and the Gleason 1000-ton lot of malleable and foundry is thought to have been placed. Several inquiries for 300 to 600 tons are out. It is reported, but not authoritatively, that the Wickwire Spencer Steel Corporation will light a stack soon.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25.....	\$19.00
No. 2X foundry, sil. 2.25 to 2.75.....	\$19.00 to 19.50
No. 1 foundry, sil. 2.75 to 3.25.....	19.50 to 20.50
Malleable, sil. up to 2.25.....	19.00
Basic.....	18.50
Lake Superior charcoal.....	29.28

Finished Iron and Steel.—Structural work has picked up a little and some of the local fabricators are busier. One has taken 150 tons for Buffalo school No. 76 and 100 tons for a Masonic temple at Ithaca. Bids are being figured on the new East High School, involving several hundred tons. The general contract has been awarded for the addition to the Purina mills, which will require 300 tons of reinforcing bars. An Erie, Pa., viaduct job of 100 tons has been awarded. Bids have been taken for 125 tons for a sewage dis-

posal plant for Lackawanna. Reinforcing bar shop production is hitting the high mark for the year, but steel mill operation is probably about 60 per cent. Bars and shapes are still being quoted at 2.265c., delivered Buffalo, with business fair.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 3.80c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.45c.; cold rolled shapes, 4.40c.; cold rolled rounds, 3.95c.; wire nails, 4.00c.; black wire, 4.05c.

Old Material.—The only buying just now is by dealers who have orders to fill. Observers say that it looks like a quiet 30-day period. One local mill will be practically out of the market for scrap when it reduces its open-hearth consumption, July 3, to accomplish an electrification program. Dealers are not disposed to sell any tonnage to mills, anyhow, because they can get more for their material by supplying some of the short orders still out, although the majority of these are out of the way. Up to now, however, the market has not eased off, and heavy melting steel is quotable at \$16 to \$16.50. Car wheels are firmer at \$16 to \$16.50; No. 1 busheling has stiffened, along with heavy melting steel. Grate bar sales at \$14.75 are noted. As an indication of the market, it is said that dealers cannot buy shearing scrap low enough to net a profit at current quotations. Valley points are offering \$18 for heavy melting steel, but no tonnage is going out of this district.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	\$16.00 to \$16.50
Low phosphorus	18.50 to 19.50
No. 1 railroad wrought	14.00 to 14.50
Car wheels	16.00 to 16.50
Machine shop turnings	10.50 to 11.00
Cast iron borings	11.00 to 11.50
No. 1 busheling	15.00 to 15.50
Stove plate	15.25
Grate bars	14.25 to 14.75
Bundled sheets	15.00 to 15.50
Hydraulic compressed	14.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	17.00 to 17.50
No. 1 cast scrap	16.50 to 17.00
Iron axles	26.00 to 27.00
Steel axles	17.00 to 17.50

St. Louis

Iron Demand Decreasing—Large Coke Contracts—Little Interest in Scrap

ST. LOUIS, June 30.—With steel mills and stove foundries in the St. Louis industrial district closing down or reducing operations, for repairs or inventory, has come a marked falling off in the demand for pig iron. It seems unlikely that there will be any buying of consequence during the next month. The St. Louis Coke & Iron Co. sold about 800 tons in lots of carloads up to 140 tons. The only inquiry of consequence is from an Illinois melter for 2000 to 3000 tons for last-half delivery. Quotations are merely nominal and price cutting is the rule in keen competition for business.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City.

Northern fdy., sil. 1.75 to 2.25...	\$22.66
Northern malleable, sil. 1.75 to 2.25	22.66
Basic	22.66
Alabama fdy., sil. 1.75 to 2.25 (rail)	\$22.67 to 23.67
Tennessee fdy., sil. 1.75 to 2.25	22.67
Granite City iron, sil. 1.75 to 2.25	21.31 to 21.81

Finished Iron and Steel.—It is expected that the inquiry of the St. Louis-Southwestern Railroad for 15,000 tons of 90-lb. rails, mentioned last week in THE IRON AGE, will be closed within the next few days. The Missouri-Kansas-Texas Railroad is in the market for between 700 and 800 tons of 90-lb. rails for replacement. Pending jobs which will require reinforcing bars follow: Coronado Hotel, 250 tons; Y. M. C. A., 350 tons; Graystone Apartments, 200 tons; Hapden Hall Apartments, 200 tons. The Y. M. C. A. building will require also 123 tons of structural steel, which has not yet been let. The only other structural job of

consequence pending is the Y. M. H. A. building, which will require about 200 tons. Warehouses have reduced prices on sheets 30c. per 100 lb. and 25c. per 100 lb. on cold-rolled rounds, shafting and screw stock. Business in other lines is dull.

For stock of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.50c.; galvanized sheets, No. 28, 5.50c.; black corrugated sheets, 4.65c.; galvanized, 5.65c.; cold-rolled rounds, shafting and screw stock, 3.70c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, $\frac{1}{8}$ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, \$3.50; hexagons, blank or tapped, \$4 off list.

Coke.—The coke market has been extremely active during the last week, because of the closing of a number of large contracts. The St. Louis Coke & Iron Co. sold on contract last week 10,000 to 15,000 tons—the largest lot being 7000 tons. The St. Louis County Gas Co. contracted with the M. W. Warren Coke Co. for 18,000 tons of water-gas coke for next year's supply. There are two inquiries of 5000 tons each for water-gas coke.

Old Material.—Cast iron car wheels and frogs, switches and guards cut apart are the only items in which consumers of old material are showing any interest, and they are up 50c. a ton. Mills in the district are curtailing operations and the approach of inventory closing is causing buying virtually to cease. Dealers are buying and letting down material in the belief that the market will begin to show some strength within the next four or five weeks. Lists issued during the week include the following: I. & G. N., 1000 tons; Texas & Pacific, 350 tons; Union Pacific, 1800 tons; Big Four, 1500 tons; B. & O., 21,000 tons; Pennsylvania System, 36,000 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton
Iron rails	\$14.00 to \$14.50
Rails for rolling	17.50 to 18.00
Steel rails less than 3 ft.	18.00 to 18.50
Relaying rails, 60 lb. and under	24.00 to 25.00
Relaying rails, 70 lb. and over	30.00 to 30.50
Cast iron car wheels	17.50 to 18.00
Heavy melting steel	14.50 to 15.00
Heavy shoveling steel	14.50 to 15.00
Frogs, switches and guards cut apart	16.50 to 17.00
Railroad springs	18.00 to 18.50
Heavy axles and tire turnings	11.50 to 12.00
No. 1 locomotive tires	18.00 to 18.50
	Per Net Ton
Steel angle bars	15.00 to 15.50
Steel car axles	18.00 to 18.50
Iron car axles	24.00 to 24.50
Wrought iron bars and transoms	19.00 to 19.50
No. 1 railroad wrought	13.25 to 13.75
No. 2 railroad wrought	13.00 to 13.50
Cast iron borings	10.00 to 10.50
No. 1 busheling	11.50 to 12.00
No. 1 railroad cast	16.50 to 17.00
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	13.75 to 14.25
Machine shop turnings	8.00 to 8.50
Champion bundled sheets	9.00 to 9.50

Dealers in Detroit Actively Bidding for Scrap

DETROIT, June 30.—Active bidding by dealers on a number of large motor lists now before the trade is developing somewhat higher prices than mills as yet are willing to pay. However consumers have bought somewhat more heavily during the week and the market is strong at the quoted prices, with the tendency apparently upward.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	\$13.25 to \$13.75
Borings and short turnings	10.25 to 10.75
Long turnings	10.00 to 10.50
No. 1 machinery cast	15.00 to 16.00
Automobile cast	22.00 to 23.00
Hydraulic compressed	12.00 to 12.50
Stove plate	12.50 to 13.00
No. 1 busheling	12.00 to 12.50
Sheet clippings	8.75 to 9.25
Flashings	10.50 to 11.00

Cleveland

Steel Prospects for July Promising— Efforts to Lift Prices

CLEVELAND, June 30.—Steel business in this district during June was equal in volume to that in May and the outlook for July is promising. Mills are getting a fair volume of scattered business in steel bars and some additional bar contracts for the third quarter have been closed by bolt and nut manufacturers and other consumers. Implement manufacturers are buying for current needs and the bulk of the business that is coming from other sources is for early requirements. Plates are moving rather slowly, although some mills report an improvement in small lot plate business. New inquiries include one for 250 tons for car repair work. Fabricators report an improvement in inquiry for railroad bridge work but not much building work is coming out in this territory. Structural inquiries include one for 2500 tons for a bridge at Bellaire, Ohio, and one from the Great Northern for 4000 tons for an ore dock at Superior, Wis. Production in the automotive industry is holding up surprisingly well. Some of the leading Detroit automobile companies plan to keep up to their recent schedules through July, although others have curtailed plant operations. Several sheet and strip mills are comfortably filled with orders for July from the automobile companies. While no Lake boats have been placed lately, the recent inquiries for five boats are still active. Prices on steel bars, plates and structural material show no change.

Pig Iron.—There was considerable activity in some sections during the week but in the Cleveland territory sales were very light. One interest sold 20,000 tons and another 13,000 tons. Purchases generally were small. Included in the week's business were 4000 tons of foundry iron to a Michigan melter for the third quarter and 2000 tons to a central Ohio foundry. Inquiry has fallen off materially, although one interest still has inquiries aggregating 8000 to 10,000 tons. Most foundries are now covered for the third quarter. While Lake furnaces took some business at \$18.50 for foundry and malleable grades during the week, the bulk of their sales was \$19, which is now fairly well established as the price in Michigan, Indiana and western and central Ohio or for points at which Valley iron does not come in competition. In the Valley district \$18.50 is the ruling price. Brokers have come into the market and are reported to be trying to buy iron at \$18. In Cleveland the price is unchanged at \$19.50 furnace for local delivery.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 from Birmingham:

Basic, Valley furnace.....	\$18.00
Nth'n No. 2 fdy., sil. 1.75 to 2.25	20.00
Southern fdy., sil. 1.75 to 2.25.....	\$24.50 to 26.01
Malleable.....	20.00
Ohio silvery, 8 per cent.....	29.02
Standard low phos., Valley furnace	28.00

Semi-Finished Steel.—Efforts of mills to secure concessions from the \$35 price on sheet bars have so far proved unsuccessful and makers seem determined to adhere to that price. In the meantime, considerable inquiry has come out but buyers are withholding orders. Some good business in wire rods has been placed since the price reduction to \$45.

Alloy Steels.—Mills still have good order books but competition for business has become somewhat keener in anticipation of curtailment in the demand from the automotive industry. Consequently, the market is not so firm as it has been and the minimum quotation in the range of prices on page 49 has become more general.

Strip Steel.—Efforts are being made by some of the independent mills to advance cold rolled strip steel to 4c., but these so far have not proved successful, as 3.50c. is still a common price. Hot rolled strip is firm at 2.20c. for wide material and 2.40c. for narrow strip except material that competes with plates and blue annealed sheets. Cold rolled strip mills secured price

concessions on hot rolled strip for the second quarter.

Sheets.—Some of the mills are attempting to get the minimum price on sheets up to 3.15c. for black and 4.20c. for galvanized but these efforts have not yet met with much success, as quotations \$1 a ton lower are still appearing. Blue annealed sheets are holding fairly well at 2.30c. and auto body sheets are firm at 4.25c., although some shading of extras has developed on the latter grade. Mills are finding it increasingly difficult to hold the Pittsburgh base because others are quoting on an Ohio mill base. The demand for sheets shows an improvement. Some third quarter contracts are being placed.

Bolts, Nuts and Rivets.—Bolt and nut specifications are holding up well but manufacturers are unable to accumulate much of a backlog and plants are operating at about 60 to 65 per cent of capacity. Buying by the automobile industry has tapered off and not much business is coming from that source for the third quarter. Prices are firm. The rivet market is weak. Some contracts are being taken at \$2.60 per 100 lb. Pittsburgh, for the third quarter by the leading local manufacturer, who is turning down offers of business at \$2.50, but a price of as low as \$2.35 is reported for current business. Small rivets are also irregular. While small lots are bringing 70 and 10 per cent off list, 70, 10 and 5 per cent might be shaded on round lots.

Reinforcing Bars.—Demand continues fairly active. Above 1.80c. on rail steel bars has disappeared and a good lot would bring 1.75c. New inquiries include 900 tons for a Cleveland warehouse for the Kroger Grocery & Baking Co.

Fluorspar.—Prices have declined \$1.50 per ton on gravel fluorspar and 50c. per ton on No. 2 lump. There is little activity as most consumers are under third quarter contracts.

Coke.—Some contracts were placed during the week for foundry coke for the last half and most consumers who buy for future delivery are now under contract. Prices are unchanged at \$4 to \$5.25 for Connellsville foundry coke and \$6.50 Fairport, Ohio, for by-product foundry coke.

Old Material.—The market is virtually at a standstill with mills showing no interest in scrap and dealers not attempting to move material. There has not been enough business the past week to indicate whether the market is strong or weak and there is no change in prices. Detroit automobile companies have issued scrap lists covering their July production, mostly in borings and turnings, aggregating about 20,000 tons. The Pennsylvania Lines will receive bids this week on a list reported to amount to 37,000 tons and the Big Four Railroad has also issued a list.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$15.25 to \$15.50
Rails for rolling.....	15.00 to 15.50
Rails under 3 ft.....	18.50 to 19.00
Low phosphorus melting.....	17.00 to 17.25
Cast iron borings.....	12.25 to 12.75
Machine shop turnings.....	12.25 to 12.75
Mixed borings and short turnings.....	12.25 to 12.75
Compressed sheet steel.....	13.25 to 13.50
Railroad wrought.....	12.00 to 12.25
Railroad malleable.....	17.75 to 18.00
Light bundled sheet stampings.....	11.00 to 11.50
Steel axle turnings.....	14.25 to 14.50
No. 1 cast.....	17.75 to 18.00
No. 1 busheling.....	12.25 to 12.50
Drop forge flashings.....	11.75 to 12.00
Railroad grate bars.....	13.25 to 13.50
Stove plate.....	13.25 to 13.50
Pipes and flues.....	9.00 to 9.25

New Die Casting Plant

The General Die Casting Co., Reading, Pa., has completed a steel-construction fireproof factory unit for the production of quality die cast parts. This is the first of three contemplated units which will give the plant, when complete, about 3000 sq. ft. of floor space. The building is equipped with automatic labor saving machinery.

The plant is under the management of F. C. Morrison, vice-president and general manager, who for the past twelve years was manager of the die-casting division of the Light Mfg. & Foundry Co., Pottstown, Pa.

Philadelphia

June Steel Business Equal to May and July Outlook Fairly Good

PHILADELPHIA, June 30.—It is the general report from steel companies' offices that steel orders and specifications in June were equal to those of May. The outlook for July is fairly good. It is to be expected that there will be at least a slight decline in production, but no marked falling off is looked for. Most of the steel plants will shut down for several days or a week over the Fourth of July. As many consuming industries will do likewise one will about offset the other.

The price situation is no better, but it is not much, if any, worse. Several mills are declining business rather than take it at prevailing prices, this being true particularly of sheets and cold rolled strip steel.

Pig iron is dull but fairly firm. The scrap market is steady. Prices have advanced no further, but sellers' views are moderately strong.

Pig Iron.—In contrast with the activity which prevailed during May and a part of June, the past two weeks have been exceedingly quiet in the pig iron trade. Orders are mostly for small lots. On such tonnages nearly all furnaces are able to obtain \$20.50, furnace, for No. 2 plain and \$21 for No. 2X. On the more desirable tonnages it is still possible to find quotations of \$20, base. None of the furnaces now in blast in this district is scheduled to go out, but none is expected to come in, so July production will continue at about the June rate.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia, and include freight rate varying from 76c. to \$1.63 per gross ton:
East. Pa. No. 2 plain, 1.75 to 2.25 sil. \$20.76 to \$21.63
East. Pa. No. 2X, 2.25 to 2.75 sil. 21.26 to 22.13
East. Pa. No. 1X. 21.76 to 22.63
Virginia No. 2 plain, 1.75 to 2.25 sil. 28.67 to 29.17
Virginia No. 2X, 2.25 to 2.75 sil. 29.17 to 29.67
Basic delivery eastern Pa. 21.50 to 22.00
Gray forge 21.50 to 22.00
Malleable 22.00 to 22.50
Standard low phosph. (f.o.b. furnace) 22.00 to 23.00
Copper bearing low phosph. (f.o.b. furnace) 25.00 to 25.50

Ferroalloys.—Better demand for ferromanganese has developed with the approach of third quarter. The trade expects larger buying because many consumers have not covered for the last half of the year. Quotations are unchanged at \$115, furnace or seaboard.

Billets.—Billet prices may be reported as nominally \$35, Pittsburgh, for rerolling quality, with \$5 extra for forging quality. Not enough inquiry has come out to test these prices.

Plates.—Reports of sales of plates at 1.80c. and 1.85c., Pittsburgh, have not weakened the market as much as is ordinarily the case. The reason for this appears to be that several of the mills are sticking closely to 1.90c., and as they show little inclination to recede from that position their customers have paid that price. Quite a number of third quarter contracts have been entered at 1.90c.

Structural Steel.—A wide spread in structural steel prices continues. This is a situation peculiar, however, to the district in and around Philadelphia and New York. Most of the mills adhere to 1.90c. or 2c., Pittsburgh, but sales have been made at figures equivalent to 1.75c. and 1.80c., Pittsburgh.

Bars.—Steel bars continue to maintain their position of strength. So far as can be learned there is no shading of 2c., Pittsburgh, on steel bars rolled from new billet stock. On rerolled bars quotations are as low as 1.80c., Pittsburgh. Bar iron is quoted by Eastern mills at 2.22c., Philadelphia.

Sheets.—Weakness in sheets is quite marked, but some companies are declining to enter the competition for low-priced orders. The figures which are said to be "bottom" with some producers are 4.10c. on galvanized, 3.10c. on black and 2.30c. on blue annealed, but black and galvanized have been cut \$1 and \$2 a ton below these figures, and blue annealed has been sold at 2.25c.

Warehouse Business.—Prices for steel out of stock show quite a wide range, but there has been no further weakness. We quote for local delivery as follows:

Soft steel bars and small shapes, 2.90c. to 3.10c.; iron bars (except bands), 2.90c. to 3.10c.; round edge iron, 3.50c.; round edge steel, iron finished, 1 1/2 x 1 1/2 in., 3.50c.; round edge steel planished, 3.10c.; tank steel plates, 1/4 in. and heavier, 2.90c. to 3.10c.; tank steel plates, 1/8 in., 3.05c. to 3.25c.; blue annealed steel sheets, No. 10 gage, 3.50c.; black sheets, No. 28 gage, 4.55c.; galvanized sheets, No. 28 gage, 5.65c.; square, twisted and deformed steel bars, 2.85c.; structural shapes, 2.80c. to 3.10c.; diamond pattern plates, 1/4-in., 5.30c.; 1/8-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4.15c.; squares and flats, cold-rolled steel, 4.65c.; steel hoops, 4c. base; steel bands, No. 12 gage to 1/8 in., inclusive, 3.75c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Imports.—Pig iron is now coming to this port in much smaller quantities than in the first few months of the year. Last week's receipts totaled only 1802 tons, of which 551 tons came from Belgium, 350 tons from Germany and 901 tons from British India. Of ferromanganese from England there was 141 tons, while other imports were 4240 tons of manganese ore from British West Africa; 382 tons of structural steel and 167 tons of steel bars from Belgium.

Old Material.—While the scrap market has not lost ground during the past week it has not gained. Its undertone continues firm, but there have been no price advances. The market is simply waiting for further interest on the part of consumers.

We quote for delivery, consuming points in this district as follows:

No. 1 heavy melting steel.....	\$15.50 to \$16.50
Scrap rails	15.50 to 16.50
Steel rails for rolling	17.50 to 18.00
No. 1 low phos. heavy 0.04 and under	20.50 to 21.50
Couplers and knuckles	20.00 to 20.50
Rolled steel wheels	20.00 to 20.50
Cast iron car wheels	17.00 to 17.50
No. 1 railroad wrought	18.50 to 19.00
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	14.50 to 15.00
Bundled sheets (for steel works)	13.50
Mixed borings and turnings (for blast furnace use)	12.00 to 13.00
Machine shop turnings (for steel works use)	13.50
Machine shop turnings (for roll- ing mill use)	13.50 to 14.00
Heavy axle turnings (for equiv- alent)	14.50 to 15.50
Cast borings (for steel works and rolling mill)	13.50 to 14.00
Cast borings (for chemical plant)	15.50 to 16.00
No. 1 cast	17.50 to 18.00
Heavy breakable cast (for steel plants)	16.50 to 17.00
Railroad grate bars	14.00
Stove plate (for steel plant use)	14.00
Wrought iron and soft steel pipes and tubes (new specifications)	16.50
Shafting	23.00 to 24.00
Steel axles	23.00 to 24.00

Tonnage Rates for Puddling Unchanged

YOUNGSTOWN, June 30.—Tonnage rates paid puddlers and bar iron finishers in Mid-Western mills operating under the sliding scale wage agreement of the Amalgamated Association of Iron, Steel and Tin Workers remain unchanged for the July-August period, as compared with the rates paid in May-June. The bi-monthly examination of sales sheets was conducted June 29 in Youngstown, and revealed an average price of 2.05c. per lb. on bar iron shipments for the 60 days ended June 20. This average is unchanged from that two months ago. The current puddling rate is \$11.63 per ton.

The settlement is the first since the conclusion of the annual wage conference at Atlantic City, when the wage and working agreement expiring June 30 was renewed for 12 months in its essential details.

D. J. Davis of Pittsburgh, secretary of the Amalgamated association, represented that organization in the absence of President M. F. Tighe, while James H. Nutt, secretary, acted for manufacturers through the Western Bar Iron Association.

The bi-monthly settlement in the sheet and tin plate division will take place within the next two weeks, to determine the tonnage rates for affected workers for July and August.

FABRICATED STEEL

Structural Awards of 37,000 Tons and Inquiries of More Than 27,000 Tons

Last week's structural steel awards were about on a par with those of the week before. Awards totaled 37,000 tons, while inquiries exceeded 27,000 tons. The outstanding awards were 8500 tons for a tin plate mill for the Youngstown Sheet & Tube Co. at Indiana Harbor, Ind., and 8000 tons for a tube mill addition at Youngstown for the same company. Next in importance was 4200 tons for the new Manger Hotel, New York. Inquiries include another section of New York City subways, requiring 6300 tons, and 4000 tons for Great Northern Railway ore docks at Superior, Wis. Awards include:

Manger Hotel, Seventh Avenue, from Fiftieth to Fifty-first Streets, New York, 4200 tons, to McClintic-Marshall Co.

Delaware River bridge, Philadelphia to Camden, steel for approaches, 1300 tons, to McClintic-Marshall Co.

Scottish Rite Temple, Philadelphia, 2000 tons, to McClintic-Marshall Co.

Mutual Benefit Life Insurance Co., office building, Newark, N. J., 2700 tons, to Shoemaker Bridge Co.

Mid-Hudson bridge, Poughkeepsie, N. Y., steel anchorages, 700 tons, to American Bridge Co.; three small bridges for approaches, 500 tons, to Bethlehem Steel Co.

New York Central Railroad, bridge repairs, 1700 tons, to a Mid-Western fabricator.

Saks' Herald Square store, Broadway at Thirty-fourth Street, New York, 200 tons, to Hadden Iron Construction Co.

Hospital, East Orange, N. J., 450 tons, to American Bridge Co.

Baldwin Locomotive Works, building at Eddystone, Pa., 300 tons, to McClintic-Marshall Co.

Johns-Manville Co., building at Pittsburgh, Cal., 400 tons, to American Bridge Co.

Loft building, West Thirty-seventh Street, New York, 400 tons, to Paterson Bridge Co.

Public School No. 131, New York, 400 tons, to Hadden Iron Construction Co.

School No. 76, Buffalo, 150 tons, to Kellogg Structural Steel Co.

Masonic Temple, Ithaca, N. Y., 100 tons, to Kellogg Structural Steel Co.

Industrial Fiber Co., Cleveland, factory, 150 tons, to McMyler Interstate Co.

Mead Pulp & Paper Co., Chillicothe, Ohio, finishing room, 250 tons, to McClintic-Marshall Co.

Appleton, Wis., 500,000 cu. ft. gas holder, to Stacey Mfg. Co.

Fifth Avenue high school, Pittsburgh, extension, 675 tons, to Jones & Laughlin Steel Corporation.

Youngstown Sheet & Tube Co., tin plate mill, Indiana Harbor, Ind., 8500 tons, and tube mill addition, Youngstown, Ohio, 8000 tons, both to McClintic-Marshall Co.

State bridge, Garden City, Minn., 135 tons, to Pittsburgh-Des Moines Steel Co.

State bridge, Rutledge and Hinckley, Minn., 127 tons, to unnamed fabricator.

Indiana Service Corporation, Spy Run car repair shop, Fort Wayne, Ind., 485 tons, to Indiana Bridge Co.

Chicago, Burlington & Quincy, I-beam and through plate girder spans, Homer, Neb., 157 tons, to American Bridge Co.

Apartment, Washington Street near Kearny, San Francisco, 100 tons, to Golden Gate Iron Works.

U. S. Government warehouse, Panama Canal Zone, 140 tons, to St. Louis Structural Steel Works.

Torpedo storehouse, Navy Yard, San Diego, Cal., 250 tons, to Pacific Rolling Mill Co., Inc.

Oregon Highway Commission, bridge over Chetco River at Brookings, Ore., 325 tons, Virginia Bridge & Iron Works low bidder.

City of Oakland, Cal., 5000 ft. pipe line, 125 tons, Pacific Coast Engineering Co. low bidder.

Weirton Steel Co., Weirton, W. Va., machine shop extension, 180 tons, to McClintic-Marshall Co.

Nurses Home, Detroit, 800 tons, to Russell Wheel & Foundry Co.

Forest Apartment, Detroit, 330 tons, to Russell Wheel & Foundry Co.

John R. O'Connor, Chicago, store and office building, 104 tons, to McClintic-Marshall Co.

George D. Crowley & Co., Chicago, store and office building, 100 tons, to McClintic-Marshall Co.

Medical Arts Building, Burlington, Iowa, 200 tons, to Rock Island Bridge & Iron Works.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Duke University, Durham, N. C., 11 buildings, 2000 tons. Apartment building, Eighty-second Street and Central Park West, 2000 tons.

New York City, subway construction under St. Nicholas Avenue, 6300 tons; bids close July 10.

Apartment building, Providence, R. I., 1000 tons.

Apartment building, Danbury, Conn., 300 tons.

New York-New Jersey vehicular tunnel, approaches on the New Jersey side, 1700 tons; bids close July 6.

Mill, Pittsfield, Mass., 165 tons.

Bridge, North Adams, Mass., reconstruction, 100 tons.

Knights of Columbus building, Louisville, Ky., 400 tons. Cincinnati *Enquirer*, building, 3000 tons, bids in July 13 to Lockwood, Greene & Co., Boston.

Nashville, Chattanooga & St. Louis Railroad, five bridges, 100 tons.

Apartment, Jackson and Laguna Streets, San Francisco, 110 tons.

Y. W. C. A. building, Los Angeles, 900 tons, Stanton, Reed & Hibbard, general contractors.

East Bay Municipal Utility District, Oakland, Cal., Mokelumne River project, 225 tons, bids Sept. 4.

McKenzie River water supply system for Eugene, Ore., 7-mile pipe line, 1500 tons, bids July 10.

Shell Co. of California, San Francisco, two 8500-bbl. tanks, 100 tons, bids in.

Nickel Plate Railroad, bridge at Old Fort, Ohio, 800 tons.

Ohio River highway bridge at Bellaire, Ohio, 2500 tons.

Great Northern Railway ore docks at Superior, Wis., 4020 tons.

Auditorium, University of Nebraska, Lincoln, 400 tons.

Holton Street viaduct, Milwaukee, 2000 tons.

Bessemer Gas Engine Co., Grove City, Pa., 450 tons; Frank D. Chase, Chicago, engineer.

Railroad Equipment Business

Orders of the Great Northern for 2200 steel underframes, calling for about 9800 tons of steel, constitute the most important activity in railroad equipment in many weeks. The Berwind-White Coal Mining Co. bought upward of 2000 mine cars. The Texas & Pacific will probably buy 25 locomotives and 750 all-steel gondolas. Items of chief interest are as follows:

The Great Northern Railway Co. has placed orders for 2200 steel underframes. The Pressed Steel Car Co. received orders for 2000 for box cars and 200 for flat cars, and the Siems-Stembel Co., St. Paul, Minn., will furnish 1000 for box cars. The total amount of steel required is about 9800 tons.

The Texas & Pacific Railroad is reported to have authorized the purchase of 25 locomotives and 750 all-steel gondolas, and inquiries will soon be sent out.

The Monon (Chicago, Indianapolis & Louisville) has inquired for 400 steel underframes.

The Pittsburgh & West Virginia Railroad has contracted for the repair of 100 freight cars with the Greenville Steel Car Co.

The Berwind-White Coal Mining Co. has ordered 1600 mine cars from the Bethlehem Steel Co. and 540 mine cars from the Pressed Steel Car Co.

The New York Central is in the market for 10 electric locomotives, but may buy 20.

The Great Northern is inquiring for 250 general service cars.

The Premier Equipment Corporation, Calhoun Avenue and Interurban Viaduct, Houston, Tex., is inquiring for a 70-ton six-wheel switching locomotive and about 1000 tons of relaying rails, 75 lb. or heavier.

Great Northern has entered the market for 250 general service cars.

The Southern has awarded 1000 steel underframes to the Virginia Bridge & Iron Co.

The Union Pacific has placed 124 refrigerator cars for the Pacific Fruit Express with the Pacific Car & Foundry Co.

It is reported the Missouri, Kansas & Texas will build 900 freight cars in its own shops.

The Boston Elevated Railway is inquiring for 100 car bodies.

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb..... 1.90c.
F.o.b. Chicago, base, per lb..... 2.10c. to 2.20c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb..... 2c.
F.o.b. Chicago, base, per lb..... 2.10c. to 2.20c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb..... 2c.
Soft steel bars f.o.b. Chicago, base, per lb..... 2.10c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb..... 2c.
Rail steel bars, f.o.b. Chicago district mills, base, per lb. 2.00c.
Common iron bars, f.o.b. Chicago, base, per lb..... 2.00c.
Refined iron bars, f.o.b. P'gh mills, base, per lb..... 3.00c.
Common iron bars, eastern Pa. mill, base, per lb..... 2.10c.

Hot-Rolled Flats

Hoops, base, per lb., Pittsburgh..... 2.40c.
Bands, base, per lb., Pittsburgh..... 2.40c.
Strips, 6 in. and narrower, base, per lb., Pittsburgh..... 2.40c.
Strips, 6 in. and wider, base, per lb., Pittsburgh..... 2.20c.
Strips, 6 in. and narrower, Chicago..... 2.50c.
Strips, wider than 6 in., Chicago..... 2.40c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb. 2.60c.
Screw stock and shafting, f.o.b. Chicago, base, per lb. 2.60c.
Screw stock, base, per lb., Cleveland..... 2.65c.
Shafting, ground, f.o.b. mill, base, per lb..... 3.00c.
Strips, f.o.b. P'gh mills, base, per lb..... 3.50c. to 3.75c.
Strips, f.o.b. Cleveland mills, base, per lb..... 3.40c. to 3.50c.
Strips, f.o.b. delivered Chicago, base, per lb..... 3.80c. to 3.90c.
Strips, f.o.b. Worcester mills, base, per lb..... 3.90c.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Nails, base, per kg..... \$2.65
Galvanized nails, 1-in. and longer, base plus..... 2.00
Galvanized nails, shorter than 1 in., base plus..... 2.25
Bright plain wire, base, No. 9 gage, per 100 lb..... 2.50
Annealed fence wire, base, per 100 lb..... 2.65
Spring wire, base, per 100 lb..... 3.50
Galvanized wire, No. 9, base, per 100 lb..... 3.10
Galvanized barbed, base, per 100 lb..... 3.35
Galvanized staples, base, per kg..... 3.35
Painted barbed wire, base, per 100 lb..... 3.10
Polished staples, base, per kg..... 3.10
Cement coated nails, base, per count kg..... 1.85
*Bale ties, carloads, to jobbers..... 75, 15 and 5 per cent off list
*Bale ties, carloads, to retailers..... 75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers..... \$65

Chicago district mill prices are \$2 per ton above the foregoing and Chicago delivered prices are \$3 per ton above the prices f.o.b. Cleveland and Pittsburgh. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant, and Duluth, Minn., mills \$2 a ton higher; Anderson, Ind., \$1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed
(base) per lb.
Nos. 9 and 10, f.o.b. Pittsburgh..... 2.25c. to 2.40c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills..... 2.35c. to 2.45c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh..... 3.10c. to 3.20c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..... 3.20c. to 3.30c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh..... 4.15c. to 4.25c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..... 4.25c. to 4.35c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh..... 3.10c. to 3.20c.

No. 28 (base) per lb., f.o.b. Chicago dist. mill..... 3.25c. to 3.40c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. Pittsburgh..... 4.15c. to 4.25c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill..... 4.60c. to 4.75c.

Tin Plate

Standard cokes, per base box, f.o.b. Pittsburgh district mills..... \$5.50
Standard cokes, per base box f.o.b. Chicago district mills..... 5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per package, 20 x 28 in.)

8-lb. coating, 100 lb..... 20-lb. coating I. C. \$15.50
base \$11.20 25-lb. coating I. C. 17.00
8-lb. coating I. C. 11.50 30-lb. coating I. C. 18.35
15-lb. coating I. C. 14.35 40-lb. coating I. C. 20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb. \$2.40 to \$2.60
Large, f.o.b. Chicago, base, per 100 lb. 2.65
Small, f.o.b. Pittsburgh..... 70 and 10 to 70, 10 and 5 per cent off list
Small, Cleveland 70 and 10 to 70, 10 and 5 per cent off list
Small, Chicago 70 and 10 to 70, 10 and 5 per cent off list

Rails and Track Equipment

(F.o.b.)

Rails, standard, per gross ton..... \$43.00
Rails, light, billet, base, per lb..... 1.70c. to 1.75c.
Rails, light rail steel, base, per lb..... 1.65c. to 1.70c.
Spikes, $\frac{1}{2}$ in. and larger, base, per 100 lb..... \$2.80 to \$3.10
Spikes, $\frac{1}{2}$ in. and smaller, base, per 100 lb..... 3.00 to 3.35
Spikes, boat and barge, base, per 100 lb..... 3.25
Track bolts, all sizes, base, per 100 lb..... 3.90 to 4.25
Tie plates, per 100 lb..... 2.35 to 2.40
Angle bars, base, per 100 lb..... 2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

	Steel			Iron
Inches	Black	Galv.	Black	Galv.
$\frac{1}{8}$	45	19 $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{8}$	+11
$\frac{1}{4}$ to $\frac{3}{8}$	51	25 $\frac{1}{2}$	$\frac{1}{2}$	22
$\frac{1}{2}$	56	42 $\frac{1}{2}$	$\frac{3}{4}$	11
$\frac{5}{8}$	60	48 $\frac{1}{2}$	1 to 1 $\frac{1}{2}$	30
1 to 3	62	50 $\frac{1}{2}$		13

Lap Weld

	Steel			Iron
Inches	Black	Galv.	Black	Galv.
2	55	43 $\frac{1}{2}$	2	23
$\frac{5}{8}$ to 6	59	47 $\frac{1}{2}$	$\frac{1}{2}$	11
$\frac{7}{8}$ and 8	56	43 $\frac{1}{2}$	3 to 6	13
9 and 10	54	41 $\frac{1}{2}$	7 to 12	26
11 and 12	53	40 $\frac{1}{2}$	1 to 1 $\frac{1}{2}$	14

Butt Weld, extra strong, plain ends

	Steel			Iron
Inches	Black	Galv.	Black	Galv.
$\frac{1}{8}$	41	24 $\frac{1}{2}$	2 to 3	61
$\frac{1}{4}$ to $\frac{3}{8}$	47	30 $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{8}$	+11
$\frac{1}{2}$	53	42 $\frac{1}{2}$	$\frac{1}{2}$	7
$\frac{5}{8}$	58	47 $\frac{1}{2}$	$\frac{3}{4}$	12
1 to 1 $\frac{1}{2}$	60	49 $\frac{1}{2}$	1 to 1 $\frac{1}{2}$	14

Lap Weld, extra strong, plain ends

	Steel			Iron
Inches	Black	Galv.	Black	Galv.
2	53	42 $\frac{1}{2}$	2	23
$\frac{5}{8}$ to 4	57	46 $\frac{1}{2}$	$\frac{1}{2}$ to 4	15
$\frac{1}{2}$ to 6	56	45 $\frac{1}{2}$	$\frac{1}{2}$ to 6	14
7 to 8	52	39 $\frac{1}{2}$	7 to 8	7
9 and 10	45	32 $\frac{1}{2}$	9 to 12	2
11 and 12	44	31 $\frac{1}{2}$		

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1 $\frac{1}{2}$ points, with supplementary discount of 5 per cent. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2 $\frac{1}{2}$ per cent beyond the above discount.

NOTE—The above discounts on steel pipe also apply at Lorain, Ohio. Chicago district mills have a base 2 points less. Chicago delivered base 2 $\frac{1}{2}$ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point having the lowest rate to destination.

Boiler Tubes

(F.o.b. Pittsburgh)

	Lap Welded Steel			Charcoal Iron
	Black	Galv.	Black	Galv.
2 to 2 $\frac{1}{4}$ in.	27	11 $\frac{1}{2}$ in.	.....	+18
2 $\frac{1}{2}$ to 2 $\frac{3}{4}$ in.	37	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ in.	.....	+8
3 in.	40	2 to 2 $\frac{1}{4}$ in.	.....	2
3 $\frac{1}{4}$ to 3 $\frac{3}{4}$ in.	42 $\frac{1}{2}$	2 $\frac{1}{2}$ to 3 in.	.....	7
4 to 13 in.	46	3 $\frac{1}{4}$ to 4 $\frac{1}{2}$ in.	.....	9

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

	Steel			Iron
	Black	Galv.	Black	Galv.
1 in.	60	3 in.	.....	45
1 $\frac{1}{4}$ and 1 $\frac{1}{2}$ in.	52	3 $\frac{1}{4}$ to 3 $\frac{1}{2}$ in.	.....	47
1 $\frac{3}{4}$ in.	36	4 in.	.....	50
2 and 2 $\frac{1}{4}$ in.	31	4 $\frac{1}{2}$, 5 and 6 in.	.....	45
2 $\frac{1}{2}$ and 2 $\frac{3}{4}$ in.	39			

Hot-Rolled

	Steel			Iron
	Black	Galv.	Black	Galv.
2 and 2 $\frac{1}{4}$ in.	34	3 $\frac{1}{4}$ and 3 $\frac{1}{2}$ in.	.....	50
2 $\frac{1}{2}$ and 2 $\frac{3}{4}$ in.	42	4 in.	.....	53
3 in.	48	4 $\frac{1}{2}$, 5 and 6 in.	.....	48

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base 85 to 87 per cent off list

Carbon 0.30 to 0.40 base 83 to 85 per cent off list

Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

	Cents per Ft.	Cents per Ft.
	2-in. O.D. 12 gage	2 $\frac{1}{4}$ -in. O.D. 10 gage
2-in. O.D. 11 gage	15	13-in. O.D. 7 gage
2-in. O.D. 10 gage	16	1 $\frac{1}{2}$ -in. O.D. 9 gage
2 $\frac{1}{4}$ in. O.D. 12 gage	16	5 $\frac{1}{2}$ -in. O.D. 9 gage
2 $\frac{1}{4}$ -in. O.D. 11 gage	17	5 $\frac{1}{2}$ -in. O.D. 9 gage

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Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 51.50 per cent iron	\$4.55
Old range non-Bessemer, 51 1/2 per cent iron	4.40
Mesaba Bessemer, 51.50 per cent iron	4.40
Mesaba non-Bessemer, 51.50 per cent iron	4.25
High phosphorus iron, 51.50 per cent	4.15

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates	\$11.00 to \$11.50
Chrome ore, Indian basic, 48 per cent Cr_2O_3 , crude, per ton, c.i.f. Atlantic seaboard	20.00 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2 , New York	65c. to 70c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsburg prompt	\$2.75 to \$2.85
Foundry coke, f.o.b. Connellsburg prompt	3.75 to 4.25
Mine run steam coal, f.o.b. W. Pa. mines	1.50 to 2.00
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.35 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	\$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid	115.00
Ferrosilicon, 50 per cent, delivered	82.50 to 85.00
Ferrosilicon, 75 per cent	145.00 to 147.50
Ferrotungsten, per lb. contained metal	1.00
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium	\$3.50 to \$4.00
Ferrocobaltitium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent	\$32.00 to \$33.00
Spiegeleisen, domestic, 16 to 19 per cent	31.00 to 32.00
Ferrosilicon, Bessemer, 10 per cent, \$34.50 to \$35.50; 11 per cent, \$37 to \$38; 12 per cent, \$39.50 to \$40.50; electric furnace ferrosilicon, 10 per cent, \$38; furnace with an advance of \$1 per unit for material above 10 per cent.	
Silvery iron, 6 per cent, \$24; 7 per cent, \$24 to \$25; 8 per cent, \$25.50 to \$26.50; 9 per cent, \$27.50 to \$28.50; 10 per cent, \$29.50 to \$30.50; 11 per cent, \$32 to \$33; 12 per cent, \$34.50 to \$35.50.	

Fluxes and Refractories

Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, gravel, per net ton, f.o.b. Illinois and Kentucky mines	\$16.00 to \$16.50	
No. 2 lump, per net ton	17.00 to 17.50	
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton	18.00	
Fluorspar, No. 1 ground bulk, 95 to 98 per cent calcium fluoride, not over 2 1/2 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	32.50	
Per 1000 f.o.b. works:		
Fire Clay		
Pennsylvania	High Duty \$43.00 to \$46.00	Moderate Duty \$40.00 to \$43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	45.00 to 48.00	38.00 to 43.00
Ground fire clay, per ton	6.50 to 7.50	
Silica Brick:		
Pennsylvania	40.00	
Chicago	49.00	
Birmingham	54.00	
Silica clay, per ton	8.00 to 9.00	
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)	65.00	
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)	40.00	
Chrome Brick:		
Standard size, per net ton	48.00	

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)	
Machine bolts, small rolled threads, .60 and 10 per cent off list	
Machine bolts, all sizes, cut threads, 50, 10 and 10 per cent off list	
Carriage bolts, smaller and shorter, rolled threads, 50, 10 and 10 per cent off list	
Carriage bolts, cut threads, all sizes, 50 and 10 per cent off list	
Eagle carriage bolts	65 and 10 per cent off list
Lag bolts	60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads	50 and 10 per cent off list

Other style heads 20 per cent extra
Machine bolts, c.p.c. and t. nuts, $\frac{1}{2}$ x 4 in.

45, 10 and 5 per cent off list

Larger and longer sizes 45, 10 and 5 per cent off list

Hot-pressed nuts, blank or tapped, square 4c. off list

Hot-pressed nuts, blank or tapped, hexagons 4.40c. off list

C.p.c. and t. square or hex. nuts, blank or tapped 4.10c. off list

Bolt ends with hot pressed nuts 50, 10 and 10 per cent off list

Bolt ends with cold pressed nuts 45, 10 and 5 per cent off list

Washers 6c. to 5.50c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot pressed and cold punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

(Quoted with freight allowed within zone limits)

Semi-finished hex. nuts:

$\frac{1}{8}$ in. and smaller, U. S. S. 80, 10 and 5 per cent off list

$\frac{1}{8}$ in. and larger, U. S. S. 75, 10 and 5 per cent off list

Small sizes, S. E. E. 80, 10, and 5 per cent off list

S. A. E., $\frac{1}{8}$ in. and larger 75, 10, 10 and 5 per cent off list

Stove bolts in packages 80, 10 and 5 per cent off list

Stove bolts in bulk 80, 10, 5 and 2 1/2 per cent off list

Tire bolts 50, 10 and 5 per cent off list

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

Per 100 Net	Per 100 Net
S. A. E. U. S. S.	S. A. E. U. S. S.
\$0.44	\$2.35
515	3.60
62	5.65
79	8.90
1.01	12.60
1.38	18.35
1.70	21.00

Larger sizes—Prices on application.

Cap and Set Screws

Freight allowed within zone limits

Milled cap screws 80, 10 and 5 per cent off list

Milled standard set screws, case hardened, 80 and 10 per cent off list

Milled headless set screws, cut thread, 80 and 10 to 80 per cent off list

Upset hex. head cap screws, U. S. S. Thread, 80, 10, 10 and 5 per cent off list

Upset hex. cap screws, S. A. E. thread, 80, 10, 10 and 5 per cent off list

Upset set screws 80, 10, and 10 per cent off list

Milled studs 75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling Billets, 4-in. and over	\$33.50 to \$35.00
Forging Billets, ordinary	38.50 to 40.00
Forging billets, guaranteed	43.50 to 45.00
Sheet bars	35.00
Slabs	33.50 to 35.00
Wire rods, common soft, base, No. 5 to $\frac{1}{2}$ -in.	\$2.50 over base
Wire rods, screw stock	\$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp grooved, per lb.	1.90c. to 2c.
Skelp, sheared, per lb.	1.90c. to 2c.
Skelp, universal, per lb.	1.90c. to 2c.

*Chicago mill base is \$47. Cleveland mill base, \$45.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E.	Bars
Series	100 lb.
Numbers	
2100* (1/2% Nickel, 10 to 20 per cent Carbon)	\$3.00 to \$3.25
2300 (3% Nickel)	4.50 to 4.75
2500 (5% Nickel)	6.00 to 6.25
3100 (Nickel Chromium)	3.50 to 3.65
3200 (Nickel Chromium)	5.50
3300 (Nickel Chromium)	7.50 to 7.75
3400 (Nickel Chromium)	6.50 to 6.75
5100 (Chromium Steel)	3.50
5200* (Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.25 to 4.50
6100 (Chromium Vanadium spring steel)	4.00 to 4.25
9250 (Silicon Manganese spring steel)	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4.25 to 4.50
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2 1/2-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

NON-FERROUS METALS

The Week's Prices

June	Cents per Pound for Early Delivery									
	Copper, New York		Straits		Lead		Zinc		New York	St. Louis
	Electro-	lytic*	New	York	New	St.	Lead	Zinc		
24.....	13.87 ^{1/2}	13.50	56.42 ^{1/2}	8.20	7.90	7.35	7.00			
25.....	13.75	13.37 ^{1/2}	56.12 ^{1/2}	8.20	7.90	7.32 ^{1/2}	6.97 ^{1/2}			
26.....	13.75	13.37 ^{1/2}	56.25	8.20	7.90	7.35	7.00			
27.....	13.75	13.37 ^{1/2}	56.75	8.20	7.90	7.35	7.00			
29.....	13.87 ^{1/2}	13.37 ^{1/2}	57.00	8.10	7.80	7.35	7.00			
30.....	13.87 ^{1/2}	13.50	57.00	8.00	7.75	7.35	7.00			

*Refinery quotation; delivered price 1^{1/2}c. higher.

New York

NEW YORK, June 30.

Copper demand is light but prices are firm. Active buying of tin has resulted in higher prices. The lead market is very quiet and slightly easier. Despite a small volume of business, zinc prices are steady.

Copper.—The activity in the copper market, which was discussed in this column last week, has been followed by extreme dullness. Prices nevertheless have tended upward, due largely to the fact that producers' order books are satisfactorily filled and consumers are not active buyers. All electrolytic copper which was available at 13.62^{1/2}c. disappeared a day or two ago and the market today became firmly established at 13.75c., delivered. The export market is also quiet; buyers, however, would have to pay a little more than a few days ago owing to the strong domestic position. Foreign sales have been somewhat slow lately because of the reports of liquidation of a large German company which is understood to hold, or to have held, large stocks of copper and other metals. Lake copper today is quoted at 13.87^{1/2}c., delivered.

Copper Averages.—The average price of Lake copper for the month of June, based on daily quotations in THE IRON AGE, was 13.71c., delivered. The average price of electrolytic copper was 13.41c., refinery, or 13.66c., delivered.

Tin.—The week has been an interesting and active one. Consumers came unexpectedly into the market a week ago yesterday and were active buyers most of the week. Total sales were large, probably 1400 to 1500 tons, the bulk being July-August arrival. Tin plate makers were the heaviest buyers. The fact that their purchases consisted of fairly early arrivals confirms the opinion, expressed frequently by some, that they were well covered until the end of June. Because of a rumor on Friday, June 26, that there might be a strike of coolies in Singapore, operators who were sellers in the morning became buyers in the afternoon, but the business was mostly among dealers. This business continued into Saturday which was an unusually active half day. The scarcity of spot metal continues a feature, but liberal shipments from London are expected to relieve this soon. Yesterday and today the market has been stagnant with the metal quoted today at 57c., New York. A little business in July arrivals was done today. London quotations today were only slightly higher than a week ago with spot standard quoted at £252 15s., future standard £255 2s. 6d. and spot Straits £256, with the Singapore price yesterday £258 5s. Deliveries of tin in June were reported to have been 6175 tons, with 1229 tons in stock and 825 tons landing.

Lead.—Two reductions have been made during the week by the American Smelting & Refining Co., one on June 24 to 8.20c., New York, and one yesterday to 8.10c. The market is exceedingly quiet and demand has subsided sharply. Prices in the outside market are 7.75c. to 7.85c., St. Louis, or 8.10c., New York, both markets in the East being on a parity.

Later: The leading interest reduced its contract price late today to 8c., New York.

Zinc.—Despite very light demand from domestic consumers and very few sales for export, the market continues firm at close to 7c., St. Louis. Prime Western

zinc for early delivery is quoted at 7c. to 7.02^{1/2}c., St. Louis, or 7.35c. to 7.37^{1/2}c., New York. Operations of galvanizers are said to be at a lower rate than in many weeks.

Nickel.—Ingot nickel in wholesale lots is quoted at 34c. per lb., with shot nickel unchanged at 35c. Electrolytic nickel is quoted at 38c.

Antimony.—Wholesale lots of Chinese metal for spot delivery are quoted at 16.50c., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—Business is quiet and the market uncertain. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	13.00
Copper, heavy and wire	12.00
Copper, light and bottoms	10.75
Heavy machine composition	10.00
Brass, heavy	8.25
Brass, light	7.00
No. 1 red brass or composition turnings	9.00
No. 1 yellow rod brass turnings	8.75
Lead, heavy	7.50
Lead, tea	6.50
Zinc	5.00
Cast aluminum	19.00
Sheet aluminum	19.50

Chicago

JUNE 30.—Tin has advanced while the other metals remain unchanged in a quiet market. Among the old metals there is only one price change, a decline in lead pipe. We quote, in carload lots: Lake copper, 13.87^{1/2}c.; tin, 57.50c.; lead, 8.40c.; zinc, 7.40c.; in less than carload lots, antimony, 19c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.25c.; red brass, 8.25c.; yellow brass, 7.25c.; lead pipe, 6.50c.; zinc, 4c.; pewter, No. 1, 30c.; tin foil, 37c.; block tin, 42c.; all buying prices for less than carload lots.

Rate Change Extension Allowed in Jones & Laughlin Case

An extension of 90 days, until Sept. 18, has been granted by the Interstate Commerce Commission to railroads embraced in the Central Freight Association and the Illinois Freight Association, to comply with the commission's finding in the Jones & Laughlin case, 96 I. C. C. 682. In its decision in this case the commission set forth a new mileage scale of rates to apply on finished steel from Pittsburgh and Chicago respectively to point in Indiana, southern Illinois and to St. Louis. The railroads were given discretion as to whether the scale would be applied strictly from point to point or whether a group plan would be employed, and they have not yet reached an agreement as to the best method.

Uddeholms to Establish Stocks in United States

Uddeholms, Ltd., a notable steel producer of Sweden, is planning to operate a direct American sales and service branch. The company has organized a subsidiary to be known as the Uddeholm Co. of America, Inc., which on or about July 15 will have headquarters at 52 Vanderbilt Avenue, New York. Arrangements are being made for warehousing stocks at central points in the United States. G. Lofberg, vice-president of the new company, will be in charge of the American operations. He will take up the work with an understanding of the products and American requirements, having for a number of years been manager of the steel department of the Scandinavian Western Importing Co., Ltd., of New York, which heretofore represented the Uddeholm interests in America.

In an article headed "Metal for Mine Cars" on page 1836 of the June 25 issue of THE IRON AGE the address of the Enterprise Wheel & Car Corporation was erroneously given as Bristol, Conn. The company's plants are at Bristol, Va.-Tenn., and Huntington, W. Va.

PERSONAL

Robert W. Wolcott, who has become president of the Lukens Steel Co., Coatesville, Pa., as announced recently in THE IRON AGE, is one of the youngest of steel company presidents, being only 32. He was born at Sewickley, Pa., and attended private and public schools. He was at Lehigh University when the United States entered the World War in 1917 and he joined the naval aviation branch of the service, receiving his training at the Massachusetts Institute of Technology. When discharged he held the rank of lieutenant. His first work after the war was with Bethlehem Fabricators, Inc., Bethlehem, Pa., structural steel fabricator. He left there in February, 1922, to go with the Lukens Steel Co. as manager of its branch at New Orleans and remained there until his recent promotion to the presidency.



R. W. WOLCOTT

leaves and remained there until his recent promotion to the presidency.

Charles R. Hook, vice-president and general manager of the American Rolling Mill Co., Middletown, Ohio, has become vice-president of the board of the American Management Association. Mr. Hook has been vice-president in charge of the association's production executives' division.

Frank P. Cox, manager of the West Lynn works of the General Electric Co., has been elected a director of the American Management Association and vice-president in charge of the association's production executives' division.

John V. W. Reynders, president of the American Institute of Mining and Metallurgical Engineers and consultant on steel properties, New York, was given the degree of doctor of engineering at the commencement of the Rensselaer Polytechnic Institute at Troy, N. Y. Later he delivered the commencement address in which he stressed the growing dependence upon engineers in the social and economic sphere of the world's progress.

John P. Fogarty, secretary and general manager Westfield Mfg. Co., Westfield, Mass., bicycle manufacturer, has been made vice-president of the company.

W. F. Blythe, for many years associated with the sales force of the American Brass Co., has accepted the position of sales manager of the mill products division of the Bridgeport Brass Co., Bridgeport, Conn.

Henry K. Smith was reelected president of the Art Metal Construction Co., Jamestown, N. Y., manufacturer of metal office, bank and vault equipment, at a meeting of the board of directors held in New York, June 26. William A. Broadhead was elected to the board of directors, succeeding the late A. N. Broadhead. Algot J. E. Larson was elected vice-president and general manager and Joseph D. Rogers vice-president in charge of sales.

John A. Jones, for 18 years head of Jones & Scharf, Inc., Jamestown, N. Y., has disposed of his interest in that firm to become active in the management of the Jamestown Metal Desk Co.

Robert J. Anderson, consulting metallurgical engi-

neer, was given the degree of doctor of science by the Massachusetts Institute of Technology on June 16.

Burrows Sloan has been elected president of the General Refractories Co. to succeed William C. Sproul, formerly Governor of Pennsylvania, who has been elevated to chairman of the board of directors, a position created for him. Mr. Sloan joined the General Refractories organization as representative in Philadelphia at the time it was formed in 1911. Later he was advanced to senior vice-president, in which capacity he was active with Mr. Sproul in directing the company's policies. Eugene A. McKelvy and Roy A. McDonald were reelected vice-presidents.

Raymond B. Hosken has been appointed general sales manager of domestic sales for the Sullivan Machinery Co. He has been attached to the sales department of the company since his graduation from the University of Michigan in 1910. After four years in the local sales department at Chicago, he was appointed Australasian manager with headquarters at Sydney, N. S. W., where he remained until 1921, when he was appointed assistant to Howard T. Walsh, vice-president in charge of sales at Chicago.

Leon Thomas and Mr. Genot of the Andre Citroën Co. of Paris, France, recently spent a week with the Miller-Hurst Corporation, General Motors Building, Detroit, in consultation on the new Andre Citroën foundry, on which the Miller-Hurst company did the preliminary engineering work. It is one of the largest foundries outside of the United States. Mr. Thomas is vice-president of the National Engineering Society of France and is also chief engineer of the Citroën company. Mr. Genot is the New York representative of Andre Citroën.

F. J. Page, formerly Chicago district manager Milwaukee Electric Crane & Mfg. Co., and R. E. Ludwick, formerly with the Whiting Corporation, Harvey, Ill., have established a sales office under the style of Page & Ludwick, 14 East Jackson Boulevard, Chicago, and will handle the account of the Milwaukee Electric Crane & Mfg. Co., as well as those of other companies making material handling equipment.

G. A. Tomlinson, director of the American Shipbuilding Co. and a well known shipping operator on the Great Lakes, has been elected president of the Detroit Shipbuilding Co., Detroit, a subsidiary of the American Shipbuilding Co.

Harry Craig, of the H. S. Gray Co., Honolulu, Hawaii, machine tool dealer, was a visitor in the Cincinnati machine tool market during the week of June 22. Mr. Craig is making a tour of the United States, visiting the various machine tool centers.

T. W. Marz, purchasing agent Andrews Steel Co., Newport, Ky., has been chosen instructor of purchasing at the Central Y. M. C. A., Cincinnati. He is junior past president of the Cincinnati Association of Purchasing Agents and director of the National Association of Purchasing Agents.

James Blair, secretary and assistant treasurer Niles Tool Works, Hamilton, Ohio, has resigned. He was associated with the company for 42 years.

Dr. William Von Opel, the German automobile builder, has spent some time in the United States buying American machine tools. He returned June 30 on the Muenchen.

Fred Erb, manager of the foundry division of the Packard Motor Car Co., Detroit, has resigned. He has been engaged in foundry work since his graduation from the University of Michigan in 1908, first with the Detroit Foundry Co. and for 12 years with the Packard company. He has served as president of the Detroit Foundrymen's Association.

Albert E. White, professor of metallurgical engineering and director of the department of engineering research at the University of Michigan, was recently granted the honorary degree of doctor of science by Brown University. At one time connected with the Jones & Laughlin Steel Co., he has been for many years with the University of Michigan.

John D. Hurley, president Independent Pneumatic Tool Co., 600 West Jackson Boulevard, Chicago, manufacturer of Thor pneumatic tools and electric drills, sailed from New York July 1 on the Aquitania for an extended trip throughout continental Europe. He will visit the various agencies and branch offices of the company.

Paul B. Mossman is the new treasurer of E. J. Lavino & Bro., Philadelphia. He was vice-president and general manager of sales American Refractories Co., Pittsburgh, prior to its absorption by the General Refractories Co., Philadelphia. He succeeds the late Walter P. French.

A. L. Luria, president Luria Brothers & Co., Reading, Pa., will sail July 8 on the Berengaria for a two months' motor tour through France, Italy, Switzerland, Germany, Belgium, Holland and England.

Sidney M. Fecheimer, formerly with the American Bridge Co. and the Truscon Steel Co.; Emanuel G. Frank, advertising manager of the Truscon Laboratories, and Roland G. Spedden, until recently with the Campbell-Ewald Co., have formed a marketing research and advertising service organization under the style of Fecheimer, Frank & Spedden, with offices at 415 Brainerd Avenue, Detroit. Mr. Fecheimer has been president of the Industrial Advertising Co., which will be taken over by the new concern.

Charles B. Wilson, formerly with Rogers, Brown & Co., and with Reed, Frears & Miller, and recently with Crocker Brothers, New York, became associated, July 1, with Phillips Isham, pig iron, coke and steel, 30 Church Street, New York.

Dr. William H. Rose, Worcester, Mass., has been appointed chief of the surgical staff of the Worcester district of the American Steel & Wire Co., his responsibilities covering the plants at Worcester, New Haven and Trenton. Dr. Rose has been in charge of the surgical work at Worcester for more than 20 years, from the beginning of the campaign for accident prevention.

G. C. Riddell has resigned as chief of the Minerals Division of the Bureau of Foreign and Domestic Commerce at Washington.

Gas Products Association Convention

The Gas Products Association, the trade association of the oxy-acetylene industry, composed of producers of oxygen, hydrogen and acetylene gases, carbide, welding and cutting apparatus and supplies, will hold its eleventh annual convention at the Grand, Mackinac Island, Mich., July 21, 22 and 23. Charles T. Allen, 140 South Dearborn Street, Chicago, is secretary and treasurer.

Foreign Works Managers at Worcester

The Norton Co., Worcester, Mass., has brought together the works managers of its four foreign operations—in Germany, France, Japan and Canada—and they are completing a short intensive course at the home plant in new production processes and methods. They are Charles H. Griffin, who has been with the Deutsche Norton Gesellschaft at its works in Wesseling, Germany, for 15 years; Harry E. Howard, located at Hirshima, Japan, for six years; Frank M. Ryan, who has been at La Courneuve, France, for two years; and Albert Johnson, with the Canadian plant for five years.

OBITUARY

ALBERT D. DORMAN, president and treasurer Steel Sales Corporation, large jobber in iron and steel, Chicago, died June 27 at the Henrotin Memorial Hospital in that city, following a second operation for appendicitis. He was 58 years of age. Mr. Dorman and associates organized the Steel Sales Corporation ten years ago. He was also Western manager of the Union Drawn Steel Co., Beaver Falls, Pa., a connection which he had held for 28 years. For 15 years prior to the organization of the Steel Sales Corporation, he was a partner in the Charles G. Stevens Co. In addition to his duties with the Steel Sales Corporation, he was president of the Steel Products Mfg. Co., the Chicago Pulley & Shafting Co., and the B. F. Gump Co. and a director of the Mercantile Trust & Savings Bank, all of Chicago.

FREDERICK F. FUESSENICH, former president of the Hendey Machine Co., Torrington, Conn., died at his home in that city June 28. He was 77 years of age and had been with the Hendey Machine Co. since 1868. In 1874 he became a stockholder and director, in 1883 was made secretary, and in 1906 became president, retaining that position until 1918, when failing eyesight caused his resignation. He retained a large stock interest up to the time of his death. Mr. Fuessenich was born in Prussia and came to this country when he was four years old. He achieved high distinction in business, civic and social circles, having been elected to State Senatorship and serving as director of many corporations in Connecticut.

HERBERT S. VALENTINE, sales manager of the monorail hoist department of the American Engineering Co., Philadelphia, and inventor of the Lo-Hed hoist manufactured by that company, died at his home in Philadelphia on June 5, of erysipelas that developed on a business trip in the West. He had more than 20 years' experience in the design and manufacture of hoists, having been connected with a number of the leading manufacturers in this line in important engineering and executive positions. He was one of the organizers of the Standard Electric Crane & Hoist Co., Philadelphia, and was its chief engineer when it was taken over in 1922 by the American Engineering Co.

FREDERICK J. BECKER, president Justrite Mfg. Co., manufacturer of fire extinguishers, lamps and other metal specialties, Chicago, died suddenly at Scranton, Pa., June 16, while on a trip through the East. He was born in Chicago in 1870 and organized the Justrite Mfg. Co. in 1906.

S. C. CARY, president and chairman of the board Cary Mfg. Co., Brooklyn, N. Y., manufacturer of shippers' supplies, died at his home, 842 Ocean Avenue, Brooklyn, June 24. Mr. Cary, who was 79 years of age, is believed to have overtaxed his heart on a recent business trip to Chicago during the heat wave. He was born at Rome, N. Y., but spent many years as a resident of Brooklyn, where he established the Cary Mfg. Co. in 1888. A. A. Hovell, a friend and attorney, was appointed trustee of the estate and becomes president and chairman of the board.

DAVID S. TROXEL, aged 61, president of the Troxel Mfg. Co., Elyria, Ohio, maker of tool boxes, bicycle saddles, etc., and twice mayor of that city, died at his home there June 25, following an illness of eight months.

The Inland Steel Co., Chicago, has broken ground at its No. 2 plant, Indiana Harbor, Ind., for a tar plant, which will reduce the residue from its by-product coke ovens to tar. The tar plant is expected to be completed and ready for operation by fall.

Square Pegs and Round Holes

(Concluded from page 25)

turnover among apprentices can be placed at a much higher figure.

Reduces Turnover Cost

The plan as developed in Milwaukee and which has been proved successful, eliminates not only the source of grievance to the foremen and apprentice instructors but also materially reduces the cost of turnover. Under this scheme young men are sent full time to the vocational school for a period varying from a week to three months. They are considered as employees in the sense that they are placed immediately upon the company payroll at the regular apprentice rate. The time at the vocational school is spent in the shop for which they have expressed a preference and in the classroom attached to the shop where the related trade instruction is given. In the school shop they come under the close observation of a man who is not only a trained mechanic but also a guide and judge of boys. The groups are kept intentionally small so that personal direction becomes an outstanding characteristic. Within a short time after a young man has entered upon this régime the instructor can under ordinary circumstances decide whether he should continue or change to some other trade. Likewise the boy has an opportunity to judge first hand and under actual conditions whether or not he has made a good choice.

The Metal Trades Group in Milwaukee has arranged with the Milwaukee Vocational School for such guidance throughout the various trades within its group. Thus a young man can be given an opportunity during his probationary period to work in the vocational school foundry, machine shop, pattern shop, drafting room or power plant. Some special departments have also been added such as heat treatment and metallurgy.

When an apprentice is needed to fill the ranks in the commercial shop the school is called upon to send the best boy available. In this case it means the boy who has given the best indications of having been properly guided and directed into the trade in question. The judgment of the school authorities is relied upon entirely in making a choice. By experience it has been proved that this judgment exercised under the condi-

tions outlined above is for all human purposes quite infallible. These young men enter the commercial shops with little or no misgiving about their choice. In fact, they usually discover that the shop processes are more interesting, more varied and carried out on a larger scale than in the school shop. Thus foremen receive young men who are determined and settled upon the choice of their vocation.

The turnover among probationary apprentices has thus been reduced from some 33 per cent to practically zero. But not only has this advantage come from the new system. Young men now enter upon their apprenticeships knowing the fundamentals of their trade. That is, they are able to recognize tools, materials, processes and operations by name which in itself is no small advantage. In addition they have had a splendid opportunity to learn some of the related trade information. They are far advanced over the young man who enters the commercial shop directly and their training can go forward much more rapidly and intelligently. All this in spite of the fact that the primary object of their full time attendance during their probationary period in the school shop is guidance and not trade instruction. It is at all times recognized both by the school and industry that the former cannot and should not attempt to carry on the industrial training without the help and assistance of the latter. The vocational school is but a supplementary agency in this regard.

Three Principles of Trade Training

Inducting young men into industry must be done intelligently and without the slightest use of propaganda methods. An industrial background should be formed in the life of the child as it passes through the grades. Those who must leave school prior to their completing high school should have the opportunity to continue their educational contact in an intelligently organized and directed manner. This educational contact should consist first of guidance, secondly of instruction. During this time the parents should be drawn into this educational process at least to the extent of becoming acquainted with the value and importance of apprenticeship methods. Finally, the vocational school can and should become the place of guidance for these young people just prior to their entering finally and definitely upon an apprenticeship.

By-Product Coke and Its By-Products in 1924

Production of by-product coke in the United States in 1924 is reported by the Geological Survey to have been 33,983,568 net tons, with a total value of \$195,690,009. Pennsylvania was the State of largest production, with 8,426,155 tons, followed by Ohio with 5,723,074 tons, Alabama with 4,386,372 tons, and Indiana with 4,272,435 tons. Of the total, 24,523,933 tons was used by the producer in blast furnaces and for other purposes. The sales amounted to 9,848,834 tons and brought \$67,988,257. Breeze production amounted to \$6,179,000. The principal by-products were as follows:

		Sales Value of That
Tar	422,074,326 gal.	\$9,661,563
Ammonia sulphate	893,127,071 lb.	22,522,248
Ammonia liquor	49,029,524 lb.	4,656,428
Gas	541,101,050 cu. ft.	49,784,947
Light oil and derivatives	128,956,955 gal.	17,029,265
Naphthalene	8,391,968 lb.	128,208
Other products		57,891
Total		\$103,840,550

Operations of Ohio Foundrymen

May operations of the members of the Ohio State Foundrymen's Association show an increase over April. The May figures indicate 77.8 per cent of capacity against 74 per cent for April and 75 per cent for May, 1924. Production of those foundries reporting for May was 20,311 tons, against capacity of 26,078 tons. Non-ferrous operations have increased from 58 per cent to 61 per cent. In May, 1924, the figure was 57 per cent.

Industrial Stocks of Coal Lowest on Record

Stocks of bituminous coal in industrial hands on June 1 are estimated by the National Association of Purchasing Agents at 39,317,000 tons, the smallest figure since the association began compiling these data. Based on the amount consumed in May, which was 29,548,000 tons, this is sufficient for 40 days. Total coal production in May is given at 44,048,000 tons, of which 35,881,000 tons was bituminous and 8,167,000 tons anthracite. Production in May exceeded that for April by nearly 3,000,000 tons. Consumption, however, was 3,158,000 tons less than in April. The decrease in stocks on hand in industries was 3,281,000 tons.

Malleable Castings in May

WASHINGTON, June 27.—Based on reports received by the Bureau of the Census from 143 plants, five of which were idle, production of malleable castings in May totaled 61,003 tons. This compares with 62,962 tons produced in April, according to reports received from 143 plants, of which four were idle. Shipments in May aggregated 61,420 tons as against 62,658 tons in April, while orders booked in May were 50,594 tons, compared with 58,001 tons in April. The May production represented 53.9 per cent of the 113,265-ton capacity of the reporting plants, as against 55.1 per cent of the reporting capacity of 114,195 tons in April.

Figures for May, 1924, were 49,814 tons production from 133 plants (two idle), or 45.6 per cent of the 109,173-ton capacity; shipments, 54,487 tons and orders booked, 29,741 tons.

Iron and Steel Exports Holding Up

May About Equals April and March, at 50 Per Cent Above
 February—Imports Less—Rolled and Finished
 Imports One-Fourth as Great as Exports

WASHINGTON, June 27.—Making a decline of 3814 tons, exports of iron and steel products in May, 1925, totaled 150,612 tons, comparing with 154,426 tons in April. For the 11 months ended with May of the current year exports aggregated 1,510,177 tons, as against 1,845,573 tons for the corresponding period of last year.

Imports also showed a decline in May, totaling 68,117 tons, as against 71,249 tons in April, a decrease of

3132 tons. For the 11 months ended with May imports aggregated 667,043 tons, a sharp increase over the corresponding period of one year ago, with a total of 444,814 tons. The upturn was due principally to heavier incoming shipments of pig iron. Imports of this blast furnace product in May amounted to 21,260 tons and for the 11 months ended with May of this year they were 289,542 tons, as against 33,299 tons in April, and 159,017 tons for the 11 months ended with May, 1924. Of the May, 1925, imports of pig iron, 12,951 tons came from British India. Next to pig iron, the largest item of imports in May of this year consisted of steel bars, the total for the month having been 7704 tons, of which

Imports of Iron and Steel into the United States

(In Gross Tons)

	May		Eleven Months Ended May	
	1925	1924	1925	1924
Pig iron	21,260	25,220	289,542	159,017
*Ferromanganese	8,321	4,996	65,696	59,559
Ferrosilicon	400	505	7,336	11,350
Scrap	6,738	1,295	80,164	72,751
Pig iron, ferroalloys and scrap	36,719	32,016	442,738	302,677
Steel ingots, blooms, billets, slabs and steel bars	1,732	5,434	32,290	33,116
Wire rods	1,212	875	5,776	5,837
Semi-finished steel	2,944	(a) 6,309	(a) 38,066	(a) 38,953
Rails and splice bars	2,949	4,221	39,826	29,829
Structural shapes	7,382	4,257	55,800	17,907
Boiler and other plates	2	46	779	2,939
Sheets and saw plates	463	93	3,391	2,842
Steel bars	7,704	—	21,926	—
Bar iron	4,026	248	9,479	5,056
Tubular products (b)	4,263	9,914	40,872	25,477
Nails and screws	156	155	550	586
Tin plate	35	142	328	1,444
Bolts, nuts, rivets and washers	6	42	115	176
Round iron and steel wire	507	544	2,727	3,286
Flat wire and strip steel	228	202	1,793	1,918
Wire rope and insulated wire, all kinds	201	8,375	6,063	9,183
Rolled and finished steel	27,922	28,239	183,649	100,643
Castings and forgings	532	237	2,590	2,541
Total	68,117	66,801	667,043	444,814
*Manganese ore	23,139	31,993	185,585	260,960
Iron ore	149,958	151,676	2,006,110	2,202,386
Magnesite	504	17,989	52,367	61,796

(a) Considerable quantities of steel bars included.

(b) Considerable quantities of cast iron pipe and fittings included.

Beginning with Jan. 1, 1925, steel bars are reported separately from the semi-finished products.

*Reported by manganese content, except manganese ore shipments from Cuba, which are duty-free and reported in gross weight. Manganese ore imports from Cuba in May, 1925, totaled 3217 gross tons and for the eleven months ended May, 1925, they were 15,666 gross tons.

Imports of Iron and Steel in Gross Tons

(By Months and Monthly Averages)

	Total Imports	Pig Iron	Ferro-alloys	Ore and Oxide*	Manganese
January, 1924	26,675	10,587	3,033	23,081	
February	42,269	15,482	4,847	4,430	
March	39,278	16,919	3,941	46,067	
April	50,969	17,171	7,371	29,729	
May	66,891	25,220	5,501	31,993	
June	60,569	28,697	2,347	24,726	
July	30,410	13,511	1,435	12,287	
August	44,928	16,189	1,120	16,160	
September	45,214	16,347	3,578	6,269	
October	40,873	10,963	8,608	12,088	
November	35,707	9,880	7,596	19,919	
December	69,281	28,143	10,530	28,305	
Twelve months' average	46,370	17,426	4,992	21,672	
January, 1925	77,058	41,344	7,165	15,498	
February	92,373	47,803	10,997	9,666	
March	92,106	50,803	5,691	24,330	
April	71,249	33,299	7,699	14,941	
May	68,117	21,260	8,721	29,139	
Eleven months' average	60,640	26,322	6,639	16,890	

*Not included in "total imports." These figures are for manganese contents of the ore.

United States Exports of Steel Products to Principal Countries in May, 1925

(In Gross Tons)

	Canada	Great Britain	3,834
Cuba	18,337	Philippine Islands	3,818
Italy	11,298	Venezuela	3,499
Mexico	7,630	Japan	3,232
Argentina	5,616	China	2,149
Chile	5,601	Java and Madura	2,084
Colombia	5,035	Belgium	1,343
Brazil	4,328		

Exports of Iron and Steel from the United States

(In Gross Tons)

	May	1925	1924	1925	1924
Pig iron	2,316	4,317	27,056	38,539	
Ferromanganese	1,007	2	4,187	3,117	
Ferrosilicon	—	5	—	1,027	
Scrap	15,361	12,017	57,308	95,991	
Pig iron, ferroalloys and scrap	18,684	16,341	88,551	138,674	
Ingots, blooms, billets, sheet bar, skelp	5,109	3,810	82,827	72,994	
Wire rods	2,251	1,085	17,357	35,572	
Semi-finished steel	7,360	4,895	100,184	108,566	
Iron bars	473	358	3,983	5,960	
Steel bars	9,118	10,680	89,570	123,598	
Alloy steel bars	574	107	3,181	2,800	
Plates, iron and steel	11,073	11,243	77,796	94,424	
Sheets, galvanized	10,004	10,051	135,184	88,933	
Sheets, black steel	5,284	5,693	97,266	158,632	
Sheets, black iron	1,281	1,358	10,727	10,840	
Hoops, bands, strip steel	3,554	3,343	30,626	35,258	
Tin plate, terne plate, etc.	10,214	21,981	129,155	160,292	
Structural shapes, plain material	6,190	9,179	91,198	93,933	
Structural material, fabricated	4,858	5,849	62,224	75,222	
Steel rails	16,320	9,491	164,833	234,892	
Rail fastenings, switches, frogs, etc.	3,441	2,729	28,624	37,896	
Boiler tubes, welded pipe and fittings	20,722	22,224	184,760	206,806	
Plain wire	3,385	2,459	28,442	63,712	
Barbed wire and woven wire fencing	6,939	6,420	80,133	65,976	
Wire cloth and screening	—	170	155	1,175	2,032
Wire rope	—	413	356	3,774	4,259
Wire nails	—	760	1,558	9,060	46,259
Other nails and tacks	747	560	8,050	7,262	
Horseshoes	95	56	743	868	
Bolts, nuts, rivets and washers, except track	—	1,720	1,462	16,397	16,262
Bolled and finished steel	117,537	127,312	1,256,903	1,536,116	
Cast iron pipe and fittings	—	2,585	1,956	26,503	26,200
Car wheels and axles	—	2,202	1,934	21,264	19,266
Iron castings	—	574	671	7,704	8,786
Steel castings	—	420	823	4,692	5,768
Forgings	—	163	204	1,786	2,197
Castings and forgings	5,944	5,588	61,949	62,217	
All other	—	1,089	—	2,592	—
Total	—	150,612	154,136	1,510,177	1,845,573

*Beginning with April, 1925.

United States Imports of Principal Products, by Countries of Shipment, in May, 1925

	(In Gross Tons)					
	Pig Iron	Steel Bars	Rails	Shapes	Tubes	All Items
British India	12,951	659	1,258	203	6,971	12,970
Germany	3,075	1,659	1,258	203	6,971	12,970
Netherlands	3,015	4,403	1,533	6,474	672	18,744
Belgium	1,069	4,403	1,533	6,474	672	18,744
United Kingdom	900	780	501	533	10,006	15,335
Sweden	780	501	2,534	4,324	154,136	163,770
France	780	501	2,534	4,324	154,136	163,770

Sources of American Imports of Iron Ore

	(In Gross Tons)					
	Eleven Months Ended May					
	May	1925	1924	1925	1924	
Spain	13,236	7,550	125,127	112,286		
Sweden	256,548	431,568				
Canada	360	103	5,180	12,106		
Cuba	33,166	30,572	352,816	517,318		
Chile	93,300	98,900	1,064,175	777,500		
French Africa	8,000	6,000	180,439	264,626		
Other countries	1,896	8,551	21,825	86,982		
Total	149,958	151,676	2,006,110	2,202,386		

4403 tons came from Belgium. The largest imports from Belgium, however, were made up of structural shapes, incoming shipments of this product from that country amounting to 6474 tons out of a total of 7382 tons. Belgium also shipped 3617 tons of iron bars and 1533 tons of rails to the United States in May, along with other products, and was the principal source of iron and steel imports, with a total of 18,744 tons.

Exports of Iron and Steel in Gross Tons

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,020
*Average, 1919 to 1923	3,078,724	123,837	149,218
January, 1924	247,942	3,812	8,594
February	164,820	4,773	11,463
March	123,618	4,047	2,278
April	131,276	4,117	8,275
May	154,136	4,317	4,895
June	163,770	2,057	11,178
Fiscal year 1924	2,009,343	40,596	119,744
July	137,481	1,796	10,363
August	134,628	4,365	6,127
September	135,979	4,799	15,473
October	157,071	3,373	15,569
November	123,577	1,478	8,649
December	128,865	2,549	7,081
Calendar year 1924	1,792,421	41,478	114,417
January, 1925	140,802	1,298	5,764
February	101,655	1,413	7,516
March	154,178	2,037	7,951
May	154,426	1,632	6,831
May	150,612	2,316	7,360
Eleven months	1,510,177	27,056	100,184

*Calendar years.

Canada led by far as the principal destination of exports, taking 57,423 tons of American steel, while Japan dropped to twelfth place, with only 3232 tons. Cuba was second, taking 18,337 tons. Boiler tubes and welded pipe combined made up the largest items of exports, the total being 20,722 tons. Steel rails were the largest single item. Of the 16,520 tons of steel rails exported in May, Cuba took 10,001 tons.

Where Steel Exports Went in May

Canada Took 271,410 Tons of Nine Leading Items in Eleven Months—Japan Second with 125,935 Tons

Exports from United States by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets				
	May		Eleven Months Ended May		May		Eleven Months Ended May		May		Eleven Months Ended May		
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	
Total	11,073	11,243	77,796	54,424	10,004	10,051	135,184	88,933	5,284	5,693	97,266	158,632	
Canada	7,383	8,089	59,892	72,940	2,770	2,598	17,801	19,030	4,462	3,997	32,303	37,605	
Japan	1		1,194	911			626	8,898	14,194	124	978	55,590	109,911
Cuba	31	499	856	1,015	725	1,114	10,485	8,881	58	130	735	1,352	
Philippine Islands	106	342	956	1,027	1,412	1,709	13,860	10,105	62	3	516	357	
Mexico	83	22	924	672	866	568	6,754	4,854					
Argentina					615	675	42,417	5,358	59	155	830	1,187	
Chile					32	132	1,640	2,080					
Colombia					350	377	5,328	2,559					
Central America					514	537	4,357	3,789					
	Steel Rails				Barbed Wire				Plain and Galvanized Wire				
	May		Eleven Months Ended May		May		Eleven Months Ended May		May		Eleven Months Ended May		
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	
Total	16,520	9,491	164,833	234,892	6,939	6,420	80,133	65,976	3,285	2,459	28,443	63,712	
Canada	3,724	2,974	13,397	48,122	459	261	4,877	2,395	1,306	596	9,738	12,879	
Japan	237	318	5,926	8,465					53	58	692	15,960	
Cuba	10,001	1,632	51,798	34,130	499	675	1,453	7,851	172	185	1,907	2,181	
Philippine Islands	917	3,820	5,018						399	372	2,505	3,388	
Mexico	126	572	5,423	7,460	601	537	5,361	3,574	12	63	6,961		
Argentina			1,266		1,279	83	8,404	7,095	16	21	514	1,469	
Chile	960	5	5,928	9,303							87		
Colombia		1,278	5,065	4,841	227	749	6,344	4,466			416	2,395	
Brazil	64	1,693	6,627	7,370	1,987	1,677	24,165	16,071					
Chosen			1,178										
Honduras		15	1,817	4,034									
Kwan Tung				12,945	62	250	2,129	3,648	240	226		3,850	
Australia					126	574	5,255	4,505					
British S. Africa													
	Tin Plate				Plain Heavy Structural Material				Steel Bars				
	May		Eleven Months Ended May		May		Eleven Months Ended May		May		Eleven Months Ended May		
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	
Total	10,214	21,981	129,155	160,292	6,190	9,179	91,198	93,933	9,118	10,680	89,570	123,598	
Canada	3,662	2,642	24,257	26,594	4,198	...	66,851	...	5,676	...	42,294	...	
Japan	931	1,143	47,782	42,412			3,906	...	222	...	1,947	...	
Cuba	74	391	4,788	4,472	711	...	11,434	...	334	...	8,890	...	
Mexico	543	...	4,513	...									
Argentina	448	756	7,793	10,512									
Chile	211	33	3,820	2,665	259	...	3,415	...					
China	1,448	7,022	6,130	29,241									
British India		3,924	...	14,430									
Hong Kong	23	2,585	1,282	8,152									
Italy	1,722	394	...	2,738									
United Kingdom									1,496	...	14,892	...	

Industrial News Notes

Upon the incorporation of the XL Cast Iron Smoke Pipe Co., 235 Nevada Street, Waterloo, Iowa, both the Anderson Foundry Co. and the Paris Foundry Co. of Waterloo ceased to exist.

The Power Equipment Co., 309 Bankers' Trust Building, Knoxville, Tenn., has been incorporated as electrical contractors on large construction jobs. At some later time the company will be in the market for power and line construction materials. Frank E. Kenner is one of the principals.

The Corbin Screw division of the American Hardware Corporation, New Britain, Conn., has increased its weekly operating schedule from 50 to 55 hr. No summer closing is anticipated this year.

The plant of the Tremont Nail Co., Tremont, Mass., controlled by the United Shoe Machinery Co., Beverly, Mass., has closed indefinitely. Demand for shoe nails appears to have dropped due to increased use of rubber soles and heels on shoes.

It is highly probable that a liquidation of the Home Sewing Machine Co., Orange, Mass., which has been in the hands of a receiver, will not be necessary. Boston interests for large creditors are said to have acquired approximately 90 per cent of the claims of other creditors. It is their intention to bid in the property and to continue the business.

The American Bosch Magneto Corporation, Springfield, Mass., is operating at capacity and it is necessary to operate night shifts at times.

The Owen Walsh Mfg. Co., 18 East Forty-first Street, New York, has been incorporated with \$100,000 capital stock to continue a business in the manufacture of electrical fixtures and equipment.

The Lewistown Electrical Co., 28 Chestnut Street, Lewistown, Pa., incorporated with \$25,000 capital stock, will take over and enlarge a business in electrical contracting. L. H. Shafer heads the company.

The M. N. Landay Co., First National Bank Building, Pittsburgh, has been organized with \$75,000 capital to deal in iron and steel scrap, new and relaying rails, and specialties for foundry practice. It will represent the Perry, Buxton Doane Co., Philadelphia, and the Hyman-Michaels Co., Chicago, handling all of their sales to mills in the Youngstown and Pittsburgh districts. M. N. Landay, president, was formerly associated with the Hyman Michaels Co.

George J. Hagan, 1105 Peoples Bank Building, Pittsburgh, has been appointed a free lance representative for the Chicago Flexible Shaft Co., covering the sale of their line of Stewart industrial furnaces. These furnaces range in size from the small gas-fired soldering iron heater to the large car-type annealing furnace and porcelain enameling furnace.

The Monongahela Iron & Steel Co., 2208 Farmers Bank Building, Pittsburgh, which heretofore has produced only low-phosphorus melting bar and muck bar, has installed mills and other equipment at its plant in Paden City, W. Va., to manufacture staybolt, engine bolt and other high grade irons made exclusively from hand-puddled muck bar. This company is the successor of the old Carter Iron Co., which had plants at Hays Station, Pa., Paden City, W. Va., and Ivanhoe, Va. The company disposed of the Hays and Ivanhoe plants several years ago.

The business of the firm of Gledhill & Co., 17-21 Union Square, Bridgeport, Conn., dealer in new and used machinery, is for sale as a going concern. W. H. Gledhill, junior member of the firm, died recently.

The Lavine Gear Co., Milwaukee, manufacturer of steering gears for automobiles, has been reorganized as the Hannum Mfg. Co. of Milwaukee, following the acquisition of large interests by George H. Hannum, formerly vice-president General Motors Corporation, and T. Ray Johnson, formerly general manager of the steering gear division, Saginaw Products Co. Herman A. Uihlein, principal owner of the Lavine company, retains an interest and will serve as chairman of the board. The Hannum company will specialize in the production of a newly designed type of steering gear for cars equipped with balloon tires, but does not plan any important expansion of capacity for the present.

The Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., has extended its apprenticeship plan from the machine shop and drafting room to the foundry and heat-treating departments. The foundry and drafting room courses are three years in length, while the machine shop and heat-treating courses cover four years each. The initial compensation for apprentices in the foundry and heat-treating shop is 22½c. an hour, and 17½c. an hour in the machine shop and drafting room.

The Saginaw Motor Equipment Co., 1914 North Michigan Avenue, Saginaw, Mich., has been incorporated with \$50,000

capital stock to act as distributor of automobile accessories, garage equipment, etc. W. G. Braden is president.

The A. J. Deer Co., Inc., Hornell, N. Y., manufacturer of coffee grinders, electric cheese and meat slicing machines and other equipment, has acquired the plant of the Brantford Scales, Ltd., Brantford, Ont., idle for the past two years, and will place the plant in operation immediately in connection with its local plant.

Recent orders of the Steinbart pressure burner and the Huesener combustion control include the equipping of six boilers and one open-hearth furnace for the Donner Steel Co., Buffalo; five boilers and four stoves, Central Furnace Co., Massillon, Ohio; six boilers, Carnegie Steel Co., New Castle, Pa.; eight boilers, Illinois Steel Co., Gary, Ind.; five boilers, Bourne-Fuller Co., Cleveland; four stoves, By-Products Coke Corporation, Chicago; three stoves and three boilers, Mystic Iron Works, Everett, Mass.; three open-hearth furnaces, Trumbull Steel Co., Warren, Ohio; one open-hearth furnace, Otis Steel Co., Cleveland; five billet furnaces, Bethlehem Steel Co., Johnstown, Pa., and two billet furnaces, same company, Lackawanna, N. Y.; two stoves and a soaking pit, Frodingham Iron & Steel Co., Consett, England.

Removal of the service department of the Chrysler Motor Corporation from Newcastle, Ind., to Dayton, Ohio, will be made at once to give the company more room in its Newcastle plant for drop forge, transmission, screw machine and axle departments. Heads of departments, numbering about 50, will move to Dayton. Present plans are to use the entire North Dayton plant of the company for the service department. There will be considerable production of parts for Maxwell cars made prior to 1925.

The Shelby Electric Co., West Marion Street, Shelby, N. C., has been organized with \$50,000 capital stock as contractor and dealer in electrical equipment.

Johnson & Dealaman, Inc., 60 Marshall Street, Newark, N. J., recently incorporated, is exclusive sales agent for the Ransome Concrete Machinery Co., the Ralph B. Carter Co., National Hoisting Engine Co. and the Cleveland Wheelbarrow Co. The company carries a complete line of contractors' equipment. D. T. Dealaman is one of the principals.

The Carmor Metal Products Co., Railway Exchange, Chicago, has been incorporated to take over the business of the Illinois corporation of the same name. D. A. Sanford is vice-president.

Dwight Divine & Sons, Inc., Ellenville, N. Y., has been incorporated with \$400,000 capital stock by members of the firm of Dwight Divine & Sons to continue the business of manufacturing pocket cutlery. There is no change of management.

The C. H. Mountjoy Parts Co., San Antonio, Tex., has been organized with \$20,000 capital stock as jobber in automobile parts and equipment. C. H. Mountjoy heads the company.

The Loyd Battery Co., Shreveport, La., recently incorporated, is the enlargement of a business established ten years ago. It will represent several manufacturers in this territory. L. C. Loyd is manager.

The Hart-Parr Co., manufacturer of farm tractors, Charles City, Iowa, at a recent meeting of stockholders, voted to reorganize and refinance the company to obtain more working capital to supply unfilled order for tractors. New capital of nearly one million dollars will be put into the business.

Roy M. Nelson & Co. have opened offices at 53 West Jackson Boulevard, Chicago, with a line of contractors' quarry and gravel plant machinery, consisting of mixers, conveyors, loaders, buckets, concrete carts, industrial and quarry cars, new and relaying rails, switches, air compressors and pumps, both diaphragm and centrifugal. They also represent Charles Hvass & Co., New York, manufacturer of asphalt distributors, flushers, heating kettles, sweepers and road tools. Mr. Nelson, until recently, was sales manager at Chicago for the Koppel Co.

Oscar Goldstein, formerly associated with Frank Hicks, pioneer machinery jobber of Los Angeles, Cal., has organized the Reliance Machine Tool Co. and has opened offices at 2030 Santa Fe Avenue, Los Angeles. The company will handle new and used metal working machinery.

Charles W. Tyacke, for the past two years with Parker Brothers Iron Co. and previous to that with the G. W. & F. Smith Iron Works and Henry T. Ripley, Inc., together with Alfred S. Barnes, Readville, Mass., has organized the Everett Iron Works, Inc., Everett, Mass., and incorporated to do a structural steel and ornamental iron business. The company's capitalization consists of 1000 shares of no par value stock.

Machinery Markets and News of the Works

SANTA FE IS BUYING

Railroad Distributing Orders for About \$100,000 Worth of Machines

June a Good Month for Some in Tool Trade and Prospects Are Fairly Promising

PURCHASES of machine tools by the Santa Fe road at Chicago are likely to be about \$100,000. This road began the distribution of orders last week, and while its buying is the most conspicuous feature of this week's market the total is not so large as the annual purchases of the Santa Fe in the past few years. It is expected that the purchases of the Burlington road also will be smaller than in recent years. The Burlington list is in the hands of its purchasing department, but it is not known in the trade how soon orders will be given out.

Next to the railroad field the automobile industry is the chief source of business, but there is a fair volume of scattered buying by industrial companies in some districts. The Buick Motor Co. has ordered four lathes from a Cincinnati builder. The Ford plant has bought a side-head boring mill.

A Cleveland manufacturer of screw machines has received export orders for 15 machines, most of which are going to Germany.

The effect which sales of used machines are having upon the market is evidenced by the sale last week of the complete equipment of the Recording & Computing Machines Co., Dayton, Ohio. About 1300 machines were auctioned and there was a large number of bidders. The tools were well distributed among dealers from all parts of the country. Considerable was bought by users. Some of the machines, which were in good condition, averaged 65 per cent of the prices of new tools.

New York

NEW YORK, June 30.

JUNE machine tool business has been at least as good as that of May. With some sellers the past two months have been the best of the year so far. There is no outstanding buying in the East, but there is a fair number of scattered orders for single machines. Automatic and semi-automatic machines are in the best demand, but among standard tools milling machines are being sold quite frequently. One of the larger milling machine plants in the Central West is working at practically full capacity. An Eastern machine tool company shared in the recent purchases of the Illinois Central Railroad to the extent of three car-wheel lathes, two 90-in. driving wheel lathes, a 90-in. wheel quartering machine, a 90-in. locomotive axle journal turning lathe and a 48-in. car-wheel borer. The A. O. Smith Corporation, Milwaukee, has bought a 42-in. vertical boring mill. The Standard Oil Co. of Kansas bought a 1100-lb. steam hammer and the International Motor Co., New Brunswick, N. J., bought two gear grinding machines.

James B. Duke, president of the Southern Power Co., 511 Fifth Avenue, New York, and associates have secured permission from the Provincial Government, Quebec, to proceed with the construction of an aluminum plant at Chute-A-Caron, near the Grande Descharge Dam, Quebec, to cost more than \$1,500,000 with equipment. The project will include a hydroelectric power plant with capacity of about 600,000 hp., to cost approximately \$7,500,000, with tower transmission lines and substations.

The American Shade Roller Co., 151 Thirty-third Street, Brooklyn, has plans for a new five-story plant, 20 x 50 ft., to cost about \$90,000. J. S. Kennedy, 157 Remsen Street, is architect.

Moore & Landsiedel, Third Avenue and 148th Street, New York, architects, have taken out a permit to build a seven-story automobile service, repair and garage building, 100 x 125 ft., at 2341-47 Twelfth Avenue, to cost \$200,000 with equipment.

The Crane Co., 836 Michigan Avenue, Chicago, is said to have tentative plans for a two-story factory branch and distributing building on DeBevoise Place, Brooklyn, 100 x 120 ft., to cost approximately \$75,000. Raymond Hood, 18 East Forty-first Street, New York, is architect.

The Keystone Equipment Co., Arcade Building, 1947 Broadway, New York, has inquiries out for an air compressor, motor or steam-driven; a standard gage locomotive; one 36-in. gage locomotive; wire rope, 5/16 to 2 1/2 in. diameter; one steam shovel, crawler or traction type; boilers, water-tube, locomotive and horizontal return tubular types; boiler tubes, and steel or iron tanks, various sizes.

Fire, June 23, destroyed a portion of the building at 622 Franklin Avenue, Brooklyn, extending through to 937-39 Bergen Street, occupied by the Standard Auto Body Co., Somer Brothers & Co., manufacturers of cabinets, etc., and the Spitz & Kaufmann Bag Co., burlap bags, etc., with total loss estimated at \$50,000, including equipment. The different companies plan to replace their plant losses.

Neil F. Ryan, Schenectady, N. Y., operating an automobile service, repair and garage building at 220-24 Broadway, has awarded a contract to Hanrahan Brothers, 336 Brandywine Avenue, for a two-story addition, 50 x 135 ft., to cost \$55,000. R. L. Bowen, 143 State Street, is architect.

The H. W. Johns-Manville Co., Madison Avenue and Forty-first Street, New York, is reported to be selecting a site in the vicinity of Pittsburg, Bay District, Cal., for a new plant for Pacific Coast trade, to cost \$500,000 with equipment. San Francisco offices of the company are at 500 Post Street.

Fire, June 13, damaged a portion of the machinery and stock at the plant of the Liberty Iron Pipe & Nipple Works, 64 Greene Street, New York. An official estimate of loss has not been announced.

I. Feldman & Son, 100 Engert Avenue, Brooklyn, manufacturers of sash, doors and kindred products, have plans for a one-story addition at 442-48 Leonard Street, 75 x 200 ft., estimated to cost \$40,000. J. M. Berlinger, 469 Seventh Avenue, New York, is architect. M. L. Kaufman, last noted address, is engineer.

The Erie Railroad Co., 50 Church Street, New York, in conjunction with the New York and New Jersey Tunnel Commission, has acquired the former plant of the Safety Car Heating & Lighting Co., Jersey City, N. J., for a reported consideration of \$750,000 and will take immediate possession. It is said that the railroad company will occupy for mechanical service. The Safety Car company removed its plant to New Haven, Conn., a number of months ago.

Fire, June 23, destroyed the plant of the Barnes Mfg. Co., West Side Avenue and Corbin Place, Jersey City, N. J., manufacturer of doors, sash, blinds, etc., with loss reported in excess of \$175,000 with equipment. Rebuilding plans are under advisement.

The Board of Education, Elizabeth, N. J., has plans under way for alterations and improvements in the local vocational school, and expects to ask bids at an early date. H. B. Brady, 33 North Broad Street, is architect.

The Vosburg Miniature Lamp Co., Mitchell Street, Orange, N. J., manufacturer of incandescent lamps, has acquired adjoining property for a one-story factory, to cost \$35,000, for which superstructure will soon begin.

The Board of Education of the Essex County Vocational Schools, 475 High Street, Newark, N. J., is asking bids until July 8, for tools, steel lockers, iron and steel and other materials and equipment for the local vocational schools. Robert O. Beebe is director.

The Irvington Machine Co., 1080 Springfield Avenue, Irvington, N. J., has inquiries out for a No. 2 turret lathe, $\frac{1}{2}$ to 1 in. chucks, without power feed to turret slide.

The plant of E. I. du Pont de Nemours & Co., Kingsland Road and Passaic Avenue, Nutley, N. J., formerly the works of the Mayfield Rubber Co., has been acquired by the Factory Associates, Inc., Nutley, and will be used for another branch of service. The plant consists of one, two and three-story buildings, totaling about 40,000 sq. ft.

Kingsland & Co., Inc., 75 Manufacturers Place, Newark, N. J., has been organized with capital stock of \$125,000 to manufacture sheet metal workers' machinery and equipment, including squaring shears, brakes, forming dies, shear blades, etc. It has leased a plant and will have work done under contract. Frank N. Kingsland is president.

The Cornine-Hakanson Die-Casting Co., Inc., 402 East 152nd Street, New York, has been organized to manufacture alloy dies and castings. Part of the work will be done by contract and the company will be in the market for materials. Marshall Cornine, who until recently was sales manager of the Republic Die Casting Co., is president of the new company, and Alfred Hakanson, formerly vice-president of the Republic company, is associated with him.

The Wittenberg Mfg. Co., 60-66 Shipman Street, Newark, recently incorporated, will manufacture electrical equipment, including insulating joints, brass pull chain, connectors, etc. It will use a large amount of small malleable castings on which it will receive quotations in the next few weeks. E. H. Wittenberg heads the company.

The Newburgh Iron Works, 302 Washington Street, Newburgh, N. Y., has been incorporated with capital stock of \$50,000 to manufacture ornamental iron and to deal in other metal products. It will also do light structural work and has established a fabricating shop. Henry Wenz is president.

The Murphy Door Bed Co., Berkeley Building, 19 West Forty-fourth Street, New York, has been organized to manufacture as indicated. Plans have been made with the Simmons Co. to handle manufacturing. W. L. Murphy is manager.

The Prentiss Vise Co., 106 Lafayette Street, New York, has purchased the Henry Cheney Hammer Corporation, Little Falls, N. Y., and will continue to operate the plant with practically the same personnel. The hammer plant will be operated as the Cheney Hammer division of the Prentiss Vise Co. F. H. Mulford is president of the Prentiss company.

The Vivader Mailing Machine Co., care of D. G. Englander, Englander Spring Bed Co., Johnson and Stewart Avenues, Brooklyn, N. Y., has been incorporated with \$500,000 capital stock to manufacture mail handling machinery. Negotiations are under way for a factory and equipment, with a view to getting into production in about two months.

The Smith Ice Systems Corporation, 874 Dean Street, Brooklyn, has been incorporated with \$500,000 capital stock to manufacture refrigeration systems and equipment. It will operate in conjunction with the Progress Ice Co. of the same address and has closed a contract for \$225,000 for the installation of equipment.

The Parker Aeolus Corporation, 161 Grand Street, New York, recently incorporated with \$300,000 capital stock and 9000 shares no par value, has an established plant for the manufacture of radio equipment.

The Metal Stamping Co., Thirteenth Street and East Avenue, Long Island City, N. Y., is in the market for a straight column geared punch press with shaft diameter of $4\frac{1}{2}$ in., stroke 3 to 4 in.; also a steel channel stave, tumbling barrel 35 in. in diameter.

The National Metal Etching Corporation, room 1709, 42 Broadway, New York, has been incorporated with \$126,000 capital stock and will operate a metal engraving works. P. C. Samuels is corporate representative.

The At-Site Time Saving Device Corporation, New

York, has been incorporated with \$150,000 capital stock to manufacture adding machines and parts. Plans for manufacturing are undetermined. Address A. W. Hoffman, care of J. A. Timony, 1170 Broadway.

The Lamb Car Bumper Corporation, New York, incorporated with \$100,000 capital stock, plans to manufacture a new type of automobile bumper. Plans for operation are still in the formative stage. Address H. H. Cannon, care of Ribman & Ribman, 949 Broadway.

The National Standard Threadless Coupling Corporation, 68 William Street, New York, incorporated with \$50,000 capital stock and 200 shares no par value, will manufacture a new kind of hose coupling. Manufacturing will be done by contract and the company expects to be ready for distribution shortly. T. J. Bagley is president and E. W. Ernst is treasurer.

The Otto R. Gischow Co., 58 Bible House, New York, incorporated with \$100,000 capital stock, is engaged in manufacturing radio dials.

The Evernu Lamp Mfg. Corporation, 1050 Metropolitan Avenue, Brooklyn, has been organized to manufacture bridge lamps and other metal specialties.

G. Dekeir, 1336 Second Avenue, New York, has organized a company with capital of \$500,000 to manufacture bakers' ovens. He intends to buy or build a plant.

New England

BOSTON, June 29.

ASIDE from inquiries for sheet metal and wood-working equipment for various Boston schools, new prospects have been slow in developing. The Lynd-Farquhar Co., Boston, was the low bidder on two or three Monarch lathes, a Step-toe milling machine and other equipment required by the city. The Fore River Works, Quincy, Mass., has placed an order for five lathes, one 36-in. x 35 ft., and a milling machine for the company's Boston dock subsidiary.

Some New England machine tool builders are more active. A maker of turret lathes has received sufficient business from valve interests to assure normal operation all summer. A Connecticut tool company is busier than it has been in months on domestic as well as export business, most of the orders, however, coming from the Middle West. Another Connecticut tool maker is fairly well booked for the next few months on lathes and milling machines.

Plans are nearly completed for the machine shop to be installed by the city of Boston in the Charlestown district. George S. McLaughlin, 80 Boylston Street, is the architect.

The Toys & Utilities Mfg. Co., Jewett City, Conn., has been organized to manufacture mechanical toys. It is erecting a shop and upon completion will be in the market for machines. George Lapoint heads the company.

The So-Lo Jack Co., 537 Commonwealth Avenue, Boston, has been organized to manufacture a new type of automobile jack. Its factory is located at Attleboro, Mass. Joseph Rioux is president and Stephen H. Garner, vice-president.

The New Haven Copper Co., Seymour, Conn., plans extensions and improvements, including the installation of additional equipment, to cost about \$50,000. Present steam-driven apparatus will be replaced with electric power.

The American Steam Gauge & Valve Mfg. Co., Boston, will move its plant from Camden Street in that city, where it has been located for many years, to the factory of the Wright Machine Co., Worcester, Mass. The financial control of the company is held by the American Schaeffer & Budenberg Mfg. Co., which corporation also controls the Wright Machine Co., which was organized 18 months ago and purchased the works of the R. B. Phillips Mfg. Co. The Wright company manufactures screw machine products, which enter largely into the fittings manufactured at the Camden Street factory. Archibald R. Lemieux has been made president of the Wright company. The work of moving the machinery from Boston has begun.

Bird & Sons, Inc., East Walpole, Mass., manufacturer of prepared roofing, etc., has plans under way for a two-story building to cost \$130,000. Monks & Johnson, 99 Chauncy Street, Boston, are architects and engineers. The new structure will be located at East Providence, R. I.

The Boston Elevated Railroad Co., 108 Massachusetts Avenue, Boston, will build a one-story machine shop at the rear of 570 Washington Street, estimated to cost \$110,000 with equipment.

The Crane Market

FEW new inquiries have appeared recently and pending business is not being placed very rapidly. Joseph E. Nelson & Son, Chicago, who will purchase the cranes for the Chesapeake & Ohio railroad shops at Russell, Ky., probably will not purchase for several weeks. The Lehigh Valley Railroad, 143 Liberty Street, New York, which has two inquiries out for 35-ton gantry cranes is expected to close on one of these in a few days. The two 25-ton gantry cranes for which the Pennsylvania Railroad has been in the market for some time are also reported active. Locomotive crane inquiries pending for several weeks include the Boston & Maine, three 25-ton, the Pennsylvania Railroad, a 30-ton, Canadian National Railways, a 35-ton and the Standard Oil Co., Baltimore, Md., a 25-ton. Quotations taken by Dwight P. Robinson & Co., New York, on a 180-ton, 40-ton, two 15-ton overhead cranes and a 10-ton gantry crane for the Mobile & Ohio are now in the hands of the railroad. Joseph Stoltz & Son, Commerce Avenue and 170th Street, New York, are accepting bids on a 5-ton, 30 to 40-ft. span used overhead crane.

Few awards of overhead cranes are reported in the Pittsburgh district, but one of the largest purchases of the year is expected in the next week or 10 days. This is the list of the Youngstown Sheet & Tube Co., calling for 19

overhead cranes for its new tin plate and sheet mills at Indiana Harbor, Ind., including eleven 15-ton, five 5-ton and three 10-ton overhead cranes.

Among recent purchases are:

Southern Pacific Railroad, San Francisco, a 10-ton, 36-ft. span electric crane from an Eastern builder.

Chile Exploration Co., New York, two large locomotive hoists for export to Chile from the Whiting Corporation.

Acme Road Machinery Co., Frankfort, N. Y., recently in the market for a 5-ton overhead crane has purchased a 5-ton used Niles crane.

McLean Contracting Co., Baltimore, a 10-ton crawler-tread locomotive crane from the Browning Co.

Cuba Cane Sugar Co., 123 Front Street, New York, a 20-ton electric crane with two 10-ton trolleys for export to Cuba from an Eastern builder.

Carnegie Steel Co., Pittsburgh, two 20-ton, 106-ft. span, 6-motor, special overhead cranes for Homestead, Pa., from the Morgan Engineering Co.

National Tube Co., Pittsburgh, a 15-ton, 92-ft. 6-in. span high type soaking pit crane for its Lorain, Ohio, works, from the Alliance Machine Co.

The French Mfg. Co., Robbins Street and Grandview Avenue, Waterbury, Conn., manufacturer of bronze and copper tubing, etc., has awarded a general contract to the Torrington Building Co., Torrington, Conn., for a one-story addition to cost approximately \$100,000 with machinery. It will be equipped to give employment to about 100 operatives, doubling the present capacity. William E. Hunt, Waterbury, is architect. Frederick W. French is president.

Plans have been filed by the Electric Storage Battery Co., 720 Beacon Street, Boston, for its proposed branch and distributing plant to cost \$140,000 with equipment. Headquarters are at Nineteenth Street and Allegheny Avenue, Philadelphia.

The Fall River Electric Light Co., Fall River, Mass., is disposing of a bond issue of \$2,000,000, a portion of the proceeds to be used for the purchase of securities of the Montauk Electric Co., which is building a new generating plant in this section to furnish power to the Fall River company, Blackstone Valley Electric Co., Pawtucket, R. I., and the Edison Electric Co., Brockton, Mass.

The Board of Education, Wallingford, Conn., plans the installation of a manual training department in its proposed junior high school to cost \$300,000. John Lund is superintendent of schools in charge.

The New England Tank & Tower Co., 44 Main Street, Everett, Mass., has awarded a general contract to the Hudson Construction Co., 6 Beacon Street, Boston, for its one-story machine shop 50 x 110 ft., to cost \$45,000.

The McCathron Boiler Works, Co., 76 Knowlton Street, Bridgeport, Conn., has taken out a permit for a one-story addition to cost about \$25,000.

Electric power equipment, hoisting, and conveying and other equipment will be installed in the proposed storage and distributing plant to be erected by the Economy Grocery Co., 85 South Leonard Street, East Hartford, Conn., to cost \$200,000. Buck & Sheldon, Inc., 60 Prospect Street, Hartford, Conn., is architect.

Philadelphia

PHILADELPHIA, June 29.

PLANS are being considered by the Schwartz Wheel Co., Market Street and the Pennsylvania Railroad, Frankford, Philadelphia, manufacturers of automobile wheels, for rebuilding the portion of its plant destroyed by fire June 20, with loss, including three buildings, in excess of \$50,000.

The Gulf Refining Co., Widener Building, Philadelphia, has acquired 6½ acres near Llanerch, Upper Darby Township, Pa., and contemplates using a portion of the site for a new oil storage and distributing plant, to cost \$80,000 with equipment.

Plans have been prepared for a one-story power house at the factory of Blumenthal Brothers, Margaret and Bermuda Streets, Philadelphia, manufacturers of chocolate specialties, etc., to include 500-hp. watertube boiler, stoker and auxiliary equipment. The Ballinger Co. is architect and engineer.

Stetler & Deysher, Jefferson Building, Philadelphia, architects, have plans for a six-story automobile service, repair and garage building, 50 x 100 ft., to cost \$125,000.

The Abrasive Co., Tacony and Fraley Streets, Philadelphia, manufacturer of grinding wheels, etc., has taken out a permit to build a one-story addition to cost about \$20,000.

The Department of Public Safety, City Hall, Trenton, N. J., has plans for a two-story automobile service, repair and garage building for municipal motor trucks and cars, 150 x 150 ft., estimated to cost \$60,000. J. Osborne Hunt, Hunt Building, is architect.

The Metropolitan Edison Co., Reading, Pa., is disposing of a new preferred stock issue to total \$1,700,000, a portion of the fund to be used for extensions and improvements, including the acquisition of additional properties. Negotiations are in progress for the purchase of the plant and system of the York Haven Electric Transmission, York Haven, Pa.

The Lukens Steel Co., Coatesville, Pa., has leased about 11 acres for a period of 99 years, adjoining its branch plant at New Orleans, and contemplates using a portion of the property for expansion.

Fire, June 24, destroyed a portion of the storage and distributing building of H. K. Shoemaker, Swedesboro, N. J., farm and agricultural implements and machinery, with loss estimated at \$25,000. Plans for rebuilding are being considered.

E. A. Wightman, Bankers' Trust Building, Philadelphia, architect, is preparing plans for the proposed Thomas Rankin Patton Memorial Industrial School for Boys, to be erected by the Masons of Pennsylvania at Elizabethtown. The buildings will include machine shop, forge shop, wood-working shop and electrical shop. A power house will be built.

Fire, June 23, destroyed the foundry of the J. C. Williamson Foundry Co., Bellwood, near Tyrone, Pa., manufacturer of castings, with loss reported in excess of \$100,000 including equipment. Plans are under advisement for rebuilding.

Schmitt & Schroeder, Weitzkern Building, Wilkes-Barre, Pa., architects, are taking bids on a general contract for a one and two-story automobile service, repair and garage building, 130 x 154 ft., estimated to cost \$130,000.

The Town Property Committee, Steelton, Pa., has been authorized to purchase a compressor trench digger and accessory equipment for municipal service. H. R. Rupp is secretary.

The Northampton Borough School Board, Northampton, Pa., plans the installation of manual training equipment in its proposed two-story and basement junior high school, reported to cost \$200,000, for which plans will be drawn in the near future. Ritter & Shay, Fifteenth and Chestnut Streets, Philadelphia, are architects.

The Wyoming Supply & Mfg. Co., Wilkes-Barre, Pa., is being organized by A. C. Campbell and associates and will establish a plant to manufacture plumbers' and steamfitters' supplies and equipment.

The Electrocoal Grate Co., 628 Commerce Street, Philadelphia, recently incorporated, will manufacture stove grates. It will receive the grates from an outside foundry in unfinished state, the finishing assembling, etc., being done in its own shop. R. W. Auer is president.

The Watson-Leonard Wheel Co., 253 Market Street, Chester, Pa., has been incorporated with \$100,000 capital stock. Plans have not been formulated. E. Norton is assistant secretary.

The Reception Radio Corporation, Seventeenth and Wood Streets, Philadelphia, has been incorporated with \$100,000 capital, to manufacture radio receivers. It has an equipped plant and operations have been started. E. E. Warlow is treasurer.

The Glenside Metal Foundry Co., 206-8 Butler Street, Reading, Pa., recently incorporated, has completed a plant to manufacture metal products, specializing for the present in aluminum castings. William McKinney is president.

The National Pipe Products Corporation, Rochester, Pa., has been organized with \$25,000 capital stock to manufacture iron, steel and brass nipples, bent pipe, etc. It will operate its own plant and is in the market for steel pipe of the smaller sizes. A. Blackstone is general manager.

South Atlantic States

BALTIMORE, June 29.

CONTRACT has been let by the Crown Cork & Seal Co., 1501-23 Guilford Avenue, Baltimore, manufacturer of metal bottle tops, etc., to John C. Siegal, 401 St. Paul Street, for a one-story addition, to cost \$50,000. Lucius R. White, Hearst Tower Building, is architect.

The Vitrostone Mfg. Co., 731 Ensor Street, Baltimore, manufacturer of artificial stone products, has acquired the former plant of the Republic Belting Co., Inc., 50 x 250 ft., including two-story factory and office building adjoining, for \$24,000. The new owner will remodel for a new plant; the present works will be removed to the new location and additional equipment installed. Nathan Levinsohn is vice-president.

The Scott Sales Co., North Road, Elizabeth City, N. C., has tentative plans for the construction of a new one-story plant for the manufacture of harvesting machines and parts, reported to cost approximately \$40,000.

The National Radiator Co., 1228 H Street, N. W., Washington, has awarded a general contract to the H. K. Ferguson Co., Cleveland, for a one-story factory branch, 75 x 225 ft., to cost \$75,000 with equipment. Headquarters are at Johnstown, Pa.

The Engineers Public Service Co., Richmond, Va., recently formed by Stone & Webster, Inc., 147 Milk Street, Boston, and associates, to take over the Virginia Railway & Power Co., Richmond, and the Spottsylvania Power Co., Fredericksburg, Va., is disposing of a preferred stock issue to aggregate \$20,000,000, a portion of the proceeds to be used to carry out the acquisition and for extensions and improvements in power plants and system. Charles A. Stone is chairman of the board.

D. E. Gannaway, Hampton, Va., and associates are completing plans for a new cold storage and refrigerating plant, in conjunction with a proposed fish-preserving factory, to cost \$200,000 with equipment.

The Angus Brick Co., Ninety-Six, S. C., has inquiries out for a steam shovel for use at its local clay properties.

The Town Board of Commissioners, Leesville, S. C., will take bids until July 28 for deep-well pumping equipment, 100,000-gal. capacity steel tank on 100-ft. tower, and accessory equipment for a municipal water supply system. The Carolina Engineering Co., Johnston Building, Charlotte, N. C., is engineer. C. D. Barr, Jr., is chairman of the board.

The American Oil Co., American Building, Baltimore, will ask bids early in July for a new storage and distributing plant at Frederick, Md., to cost \$50,000 with equipment. T. J. O'Connell is company engineer, in charge. Louis Blaustein is president.

Bids are being asked until July 15 by the general purchasing officer, Panama Canal, Washington, for quantities of steel machine bolts, deck bolts, steel rivets, machinists' taps, pipe taps, twist drills, reamers, tackle blocks, chain blocks, one electric generator, 4500 ft. brass tubing, 148,000 ft. steel wire, 1000 condenser tubes, 400 Stillson wrenches, 1750 doz. hacksaw blades, screw clamps, and other specialties, as per Panama circular 1681.

D. C. Elphinstone, Inc., Continental Building, Baltimore, machinery dealer, has inquiries out for a belt-driven air compressor, suitable for operating jackhammers.

The J. C. Hollingsworth Lumber Co., Mount Airy, N. C., is in the market for a quantity of wood-working machinery, including planer, matcher, cut-off and rip saw, and equipment for the manufacture of millwork specialties, including door and window frames, etc.

The Phoenix Stone Co., Arlington, Va., has completed plans for a one-story mill, 135 x 250 ft., estimated to cost \$90,000 with equipment.

The Warfield Motor Co., 1134 Connecticut Avenue, Washington, recently organized, will operate a service and machine repair shop in the building at Florida Avenue and Fourteenth Street. C. G. Warfield heads the company.

The Williams Veneer Co., Baltimore, is said to be planning for expansion and the installation of considerable additional equipment for increased output. The company has recently increased its capital from \$150,000 to \$2,800,000, a portion of the fund to be used for such purpose.

The Hackley-Morrison Co., Inc., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a steam hammer pile driver, capacity about 12,000 lb., provided with driving cap; a crude oil engine, about 50 hp., Fairbanks-Morse type; one 25-kw. engine-generator set, either steam or oil fuel engine, generator to be provided with a belt-driven exciter and accessory apparatus.

The A. S. Carr Co., Bainbridge, Ga., has acquired property and plans the early erection of a new steam distilling plant, with installation to include boilers, engines, storage tanks, distilling machinery, etc., reported to cost \$55,000. A contract for buildings has been let to the Steel Products Co., Savannah, Ga.

The Engineering Specialty Co., Charlotte, N. C., has acquired the local plant of the Southern Ice Machine Co., and will occupy the works for a similar line of manufacture. Extensions are said to be under advisement.

C. H. Pittman, 93 Elizabeth Street, Atlanta, Ga., is in the market for a 150-hp. Corliss engine, and for a 150-kw. electric generator, with accessory apparatus, for local installation.

The King Lumber Co., Charlottesville, Va., is in the market for a steel building, one-story, 100 x 200 ft.

The Lambert Auto Co., Inc., Baltimore, has acquired about one acre at Greenmount Avenue and Twenty-fifth Street, for \$34,000, and is said to have plans under advisement for a new service, repair and garage building to cost \$75,000 with equipment.

The Blue Ridge Furniture Mfg. Co., King, N. C., recently organized to take over the King Mfg. Co., has acquired a wood-working plant at Main and Depot Streets, for a new works. Plans are under way for remodeling and the installation of equipment. F. N. Jones is manager.

The Shambow Shuttle Works, Inc., Greenville, S. C., manufacturer of textile equipment, shuttles, etc., has leased a building to be erected on South Main Street, 30 x 140 ft., and will equip for a new distributing plant. It is estimated to cost approximately \$30,000.

Pittsburgh

PITTSBURGH, June 29.

THE machine tool trade is experiencing the quiet time incident to this season of the year. A few sellers report June business to have been fairly satisfactory, but with the majority sales were lighter than in May and new inquiries have been scarce. The Westinghouse Electric & Mfg. Co. recently bought a 5-in. borer with horizontal mill for its East Pittsburgh plant and several small machines for Mansfield, Ohio. Many of the items on the second quarter list of this company were cancelled, but will probably be repeated in the list for third quarter, which is expected to come out next week. The trade is much interested in the 30 tin mill shears for which the Youngstown Sheet & Tube Co. has taken bids and which are expected to be placed shortly.

The Pittsburgh Steel Products Co. has placed a 7500-kw. turbo-alternator with the General Electric Co. and a surface condenser with the Wheeler Condenser & Engineering Co.

Plans are being completed by the Pennsylvania Plate Glass Co., Inc., Odd Fellows Building, Kane, Pa., W. A. James, president, for its proposed works at James City, Pa., and foundations for initial units will soon be laid. The cost is placed at \$1,500,000 with machinery. A one-story machine shop will be included.

The Copper Welding Corporation, Pittsburgh, has leased a foundry on Wayne Street, Lawrenceville district, totaling about 8000 sq. ft., for a new plant.

The Pittsburgh Auto Gear Co., Pittsburgh, headed by Louis Evanier, has acquired property, 87 x 100 ft., improved with buildings, at Penn Avenue and Thirty-third Street, for \$25,000, and is said to be planning to remodel and occupy.

T. Edward Cornelius, Mage Building, Pittsburgh, architect, has completed plans for a two-story and basement machine and repair shop, 35 x 80 ft., to cost \$25,000 with equipment.

The Penn Metal Co., 675 Concord Avenue, Cambridge, Mass., manufacturer of stamped metal goods, metal ceilings, etc., has selected property at Parkersburg, W. Va., and will have plans drawn for two units of a new plant estimated to cost \$115,000. The works will be designed to consolidate operations now conducted in factories at Philadelphia and New York, with the installation of considerable additional equipment. Later, the Parkersburg plant will be extended with other units to cost \$1,000,000.

The Norfolk & Western Railway Co., Roanoke, Va., is said to have plans for extensions and improvements in its car and locomotive shops at Williamson, W. Va., including the erection of a new engine house, machine shop and other structures to cost \$650,000 with equipment.

The Bessemer Gas Engine Co., Grove City, Pa., plans the installation of an apprentice department in one of the buildings to be erected and special equipment will be purchased. J. P. Henry, shop superintendent, is in charge. Plans for the new units are being drawn by F. D. Chase, Inc., 720 North Michigan Avenue, Chicago, architect and engineer.

The United Type Founders Co. has been organized as a subsidiary of the Miller Saw-Trimmer Co., manufacturer of printing machinery, Pittsburgh, and will manufacture type. F. F. Nicola is president of the Miller company.

Detroit

DETROIT, June 29.

WORK has begun on rebuilding the plant of the Standard Machine Co., Owosso, Mich., recently partially destroyed by fire. It is planned to install additional equipment.

The Packard Motor Car Co., 1380 East Grand Boulevard, Detroit, has asked bids on a general contract for a one-story addition, 85 x 150 ft., for assembling. It will cost close to \$50,000. Albert Kahn, Inc., Marquette Building, is architect.

A one-story power plant will be constructed at the factory of the Wolverine Shoe & Tanning Co., Rockford, Mich., estimated to cost \$45,000 with equipment.

Bids will soon be asked on general contract by the H. B. Sherman Mfg. Co., Barney Street, Battle Creek, Mich., manufacturer of brass, bronze and other metal castings, for its proposed one-story foundry addition, 115 x 197 ft. L. J. Sarvis, 65 East Main Street, is architect; L. H. Heuser, 53 West Jackson Boulevard, Chicago, is structural engineer.

The Wave Radio Co., Detroit, Proctor Brevard, general manager, has opened negotiations with the Chamber of Commerce at Royal Oak, Mich., relative to the establishment of a new plant for the manufacture of radio apparatus, with initial facilities to provide for the employment of about 200 operatives.

The Board of Education, Muskegon Heights, Mich., plans the installation of manual training equipment in its proposed two-story junior high school, estimated to cost \$325,000, for which Frank Forster, 40 Lyman Place, Muskegon, Mich., is architect.

The Crippen Mfg. Co., Mount Pleasant, Mich., manufacturer of bean machinery and kindred equipment, has acquired the plant of the Bollstrom Motor Co., St. Louis, Mich., heretofore devoted to the production of commercial automobiles, and will occupy as a branch works.

The Sauzedde-Buchanan Mfg. Co., Owosso, Mich., manufacturer of tools, has leased a building and is expected to purchase equipment at an early date.

The Wolverine Brass Works, Inc., 620 Monroe Avenue, Grand Rapids, Mich., has awarded a general contract to I. K. Parsons & Son, 308 Jefferson Street, for a one-story addition. Osgood & Osgood, Monument Square Building, are architects. L. A. Cornelius is president.

The Ford Motor Co., Highland Park, Detroit, has awarded a contract to Bryant & Detwiler, Dime Bank Building, for a one-story extension at its River Rouge plant, 400 x 1060 ft.

The Board of Education, Big Beaver, Mich., is considering the installation of a manual training department at its proposed high school, estimated to cost \$100,000, for which plans will soon be drawn.

The Ypsilanti Foundry, Ypsilanti, Mich., manufacturer of

piston rings, has awarded contract for a new machine shop to the Austin Co., Detroit and Chicago. It will be of mill type construction, two stories, 50 x 160 ft. All material purchases, as well as construction, will be handled through the Chicago office of the builder. J. H. Lonsky is president of the Ypsilanti Foundry Co.

Buffalo

BUFFALO, June 29.

PLANS have been filed by the Buffalo Box Factory, 2-20 Scoville Street, Buffalo, manufacturer of corrugated fibre boxes and containers, for a one-story addition, 80 x 100 ft., to cost \$55,000 with equipment, for which a general contract has been let to Crooker & Carpenter, Crosby Building. Bley & Lyman, 531 Delaware Avenue, are architects.

The Davis Furniture Co., 119 Cheney Street, Jamestown, N. Y., has awarded a general contract to the Warren Construction Co., Gokey Building, for a four-story addition, 56 x 80 ft., to cost \$60,000. Beck & Tinkham, Phillips Building, are architects.

Fire, June 20, destroyed a portion of the plant of the Coplan Steel Co., Ogdensburg, N. Y., with loss reported at \$30,000 including equipment. It is planned to rebuild Headquarters of the company are at Hull, Que.

The Gessner Delivery & Carting Co., 202 Carroll Street, Buffalo, has plans for a new automobile service, repair and garage building for company motor trucks, reported to cost \$50,000 with equipment.

The Morrison Veneer Co., 34 Steele Street, Jamestown, N. Y., has plans for a one-story factory at Saranac Lake, N. Y., to be one-story, 60 x 160 ft., estimated to cost \$40,000. Beck & Tinkham, Phillips Building, Jamestown, are architects.

The Advance Furniture Co., Hopkins Street, Jamestown, N. Y., has awarded a general contract to Wellburg & Linquist, Gokey Building, for a two-story addition, 80 x 245 ft., to cost approximately \$85,000. A. A. Sandberg is one of the heads of the company in charge.

Walter A. Smith, 112 Buffalo Street, Jamestown, N. Y., has acquired a site along the New York Central Railroad, at Sinclairville, N. Y., upon which it is planned to erect a gasoline and oil distributing station at a cost of \$50,000. Air compressors, electric pumps and other equipment will be required.

The Tiger Mfg. & Supply Co., Niagara Falls, N. Y., recently organized by George Stoll, 2835 McKoon Avenue, and associates, has plans for a factory to manufacture farm and general agricultural implements.

Cleveland

CLEVELAND, June 29.

MACHINE tool business continues fair. Purchases by the automotive industry fell off the past week but this was offset by better demand from other sources. The total volume of sales during June was about the same as in May. Automatic screw machinery is still moving well with bookings from single machines up to lots of four or five, and export demand has also picked up. Orders for 15 screw machines for export, mostly for Germany, were received by a local manufacturer during June. Turret lathes continue fairly active.

The machinery equipment in the plant of the Recording & Computing Machines Co., Dayton, Ohio, amounting to about 1300 machines, was sold at auction the past week and attracted a large number of bidders. The machinery was well distributed among dealers from almost all parts of the country and a considerable amount was bought by users. Most types of high grade machines in good condition brought good prices averaging, it is stated, around 65 per cent of the present selling prices of new machinery of the same types. Lines for which good prices were paid included lathes, milling machines, shapers, high speed drilling machines and some makers of hand screw machines.

The Canton Bridge Co., Canton, Ohio, contemplates the erection of a steel fabricating plant at New Philadelphia, Ohio.

The Sterling Brass Co., 9600 St. Catherine Avenue, Cleveland, has taken bids for a two story and basement factory, 40 x 85 ft. Allen Sogg, 3030 Euclid Avenue, is the architect.

The Buckeye Traction Ditcher Co., Findlay, Ohio, has placed contract with Alge Brothers, Findlay, for a foundry, 100 x 175 ft.

Albert Martin, 533 West Third Street, Dayton, Ohio, has taken bids for a one-story machine shop, 38 x 50 ft.

The National Division of the American Stove Co. has awarded contract to Graupner & Ule, Lorain, Ohio, for an addition to its annealing plant at Lorain.

The Weber Dental Mfg. Co., Canton, Ohio, manufacturer of dental office equipment, plans the erection of two additions, 33 x 150 ft. and 33 x 100 ft., respectively, at an estimated cost of \$40,000.

The Q. S. T. Radio Co., 14724 Detroit Avenue, Cleveland, has been organized to manufacture radio equipment. J. E. Roberts is engineer.

Charles A. Crummel, Lake, Ohio, is in the market for electrical refrigeration equipment for two proposed ice manufacturing plants.

Cincinnati

CINCINNATI, June 29.

JUNE has been the best month in the year for many machine tool plants in Cincinnati. Production at present is higher than it has been for a number of months. Purchases by railroads and automobile manufacturers have contributed largely to the goodly share of local business. Increased buying from the general industrial field has also been an important factor in speeding up machine tool operations here. Foreign orders, while not as numerous as early in the year, are by no means a minor consideration. One large manufacturer has had good European business the first half of the year and is looking forward to a fair number of orders from abroad in the next few months. The Sorocabana Railway, Brazil, bought a 36-in. side-head boring mill the past week.

The automotive industry continues to make purchases of machine tools. The Buick Motor Co., Flint, Mich., has placed an order for four lathes with a local builder. The Ford Motor Co., Detroit, has purchased a 36-in. side head boring mill. Railroad buying is still active. A local manufacturer booked orders for three turret lathes from several carriers, while the Cincinnati Planer Co. sold a 5-ft. boring mill to a railroad. The Rock Island has closed for four spindle multiple drills. The Cincinnati Shaper Co. booked an order for a steel press brake from the Consolidated Iron & Steel Mfg. Co., Republic Structural Iron Works division, Cleveland, and another order for a steel press brake from the Pullman Car & Mfg. Corporation for shipment to Richmond, Cal. The Illinois Central Railroad included in its recent purchases several lathes from a Cincinnati company. Planer manufacturers report good sales. The Cincinnati Planer Co. sold two planers to the Link-Belt Co., Chicago, and a planer to the Gardner-Governor Co., Quincy, Ill. The Liberty Machine Tool Co., Hamilton, Ohio, booked a 48-in. planer from the City Machine & Tool Co., Toledo, Ohio, and a 24-in. planer from the General Tool & Engineering Co., Detroit. The SKF Ball Bearing Co., Hartford, Conn., bought a 36-in. side head boring mill. Shaper manufacturers state that their business has been active. The Philadelphia Rapid Transit Co. has bought a shaper locally. Manufacturers of drills report that orders have fallen off to some extent in the last 10 days. Milling machine builders have been operating at a fairly good rate. An order that has attracted attention is that of the Link-Belt Co., Chicago, for an 18-in. crank slotted.

The Chesapeake & Ohio Railroad, Richmond, Va., is reported to be asking bids on the construction of a boiler plant at Huntington, W. Va. It will be 140 x 404 ft., with a 90-ft. bay equipped with two 15-ton electric traveling cranes. One 50-ton electric traveling crane and several 2- and 5-ton cranes will also be installed.

The Inland Mfg. Co., Dayton, Ohio, is said to be contemplating expansion, to include gear-shifts, rubber balls and composition radiator caps. It is at present manufacturing automobile steering wheels.

The Burkett Closed Body Co., Dayton, Ohio, manufacturer of automobile bodies, has acquired unit No. 5 of the former plant of the Davis Sewing Machine Co., Dayton, consisting of 71,000 sq. ft. The purchase will enable the company to triple its present production.

J. B. Morton, 530 West Third Street, Dayton, Ohio, has started the erection of a one-story factory to cost \$6,000. His son, M. O. Morton, will manufacture screw machinery and carry on experimental work in the new building.

The Kentucky-Tennessee Light & Power Co. has filed application for permission to erect a 500-hp. electric gen-

erating plant in McLean County, Ky., 27 miles southeast of Henderson, on the Green River.

The Oakley Foundry Co., Oakley, Cincinnati, has engaged Frank D. Chase, Inc., 645 North Michigan Avenue, Chicago, architect and engineer, to prepare plans for a one-story foundry.

The Board of Education, Berea, Ohio, plans the installation of manual training equipment in a proposed three-story high school estimated to cost \$300,000, for which plans are being drawn by Fulton & Taylor, 8120 Euclid Avenue, Cleveland.

Fire, June 20, destroyed a portion of the plant of the Paris Milling Co., Paris, Ky., with loss estimated at \$100,000 including machinery. Plans for rebuilding are being considered.

The City Council, Jackson, Ky., contemplates the installation of a pumping plant on the North Fork of the Kentucky River in connection with proposed extensions in the municipal water and sewage systems. A. B. Hargis is engineer, in charge.

The Jellico Brick Corporation, Jellico, Tenn., has tentative plans for extensions and the installation of additional machinery estimated to cost \$85,000.

T. W. Minton & Co., Barboursville, Ky., have acquired about 20 acres and plan the early erection of a lumber and woodworking plant to cost \$50,000 with equipment.

The City Council, Paris, Tenn., is arranging for the installation of additional equipment in the municipal electric light and power plant. Pumping and accessory machinery will also be installed at the waterworks.

The Paducah Water Co., Paducah, Ky., has plans under way for extensions and betterments in its waterworks and system, including the installation of pumping machinery and accessory equipment to cost \$350,000.

Chicago

CHICAGO, June 29.

THE Santa Fe has been closing against its list of machine tools and will probably complete the distribution of orders before the end of this week. Its purchases are unlikely to exceed more than \$100,000 and are said to be the smallest for any year since the war. This road has also put out a new inquiry for a Chambersburg, or equivalent, 100-ton motor-driven driving box press with 24-in. stroke and 36 in. between columns. The Burlington list is in the hands of the purchasing department, but orders by that road are also expected to be smaller than in recent years. Demand from industrial companies cannot be described as steady, but despite the intermittent character of business from that quarter, orders placed during the month of June were larger in the aggregate than had been expected. In fact, machine tool bookings of several dealers for the month will be the largest since December.

The Link-Belt Co., Chicago, has closed for two planers, a 30-in. and a 72-in. The Gardner Governor Co., Quincy, Ill., bought a 48-in. x 12-ft. open side planer. The Oil-Gear Co., Milwaukee, has placed an order for a 34-in. boring mill and the Hubbard Steel Foundry Co., East Chicago, Ind., has closed for a 7-ft. American universal radial drill. The Nash Motors Co. has closed for additional milling and drilling equipment for its Kenosha plant. The Recording & Computing Scale Co., Dayton, Ohio, has disposed of 1300 machine tools at a public sale. A considerable number of the purchasers were machine tool users, and equipment in good condition brought good prices. The U. S. Gypsum Co., Chicago, placed an order for a No. 3 milling machine for an Ohio plant. The Milwaukee Board of Education is inquiring for a 15-in. x 6-ft. engine lathe and the University of Wisconsin, Madison, Wis., is in the market for a 14-in. x 8-ft. motor-driven engine lathe. The Hurley Machine Co., Cicero, Ill., has entered the market for the following machine tools:

One No. 1 Garvin profiling machine.
Two 3-spindle high speed motor-driven drill presses.

Two 4-spindle high speed motor-driven drill presses.

Two 6-spindle high speed motor-driven drill presses.

Three 24-in. single spindle sliding head motor-driven drills with tapping attachment.

Three 24-in. single spindle sliding head motor-driven drills without tapping attachment.

Two hand milling machines, No. 6 Whitney, or equivalent.

The Central Cold Storage Co., Dearborn and Kinzie Streets, Chicago, has awarded contract for a two-story power house, 85 x 99 ft., at 1506-14 South Sangamon Street, to cost \$50,000.

The Dearborn Chemical Co., 1029-37 West Thirty-fifth Street, Chicago, has awarded contract for a one and two-story power plant, 50 x 90 ft., to cost \$40,000.

The International Harvester Co., 606 South Michigan Avenue, Chicago, is making alterations to a three-story manufacturing building, 47 x 195 ft., consisting of the installation of new girders, columns and joists, at 1015 West 120th Street, Pullman Works, to cost \$25,000.

The National Air Filter Co., 9 South Clinton Street, Chicago, recently incorporated with \$24,000 capital stock, will manufacture a rotary air filter for use in any ventilating supply system where dirt in the air is an objectionable factor. At present the filter is being built by contract, but later the company expects to build or lease a plant. Officers are J. L. Harpham, president and sales manager, and H. E. Birkholz, vice-president and chief engineer.

The Chicago-Wilcox Mfg. Co., East Seventy-seventh Street and Anthony Avenue, Chicago, recently incorporated with \$60,000 capital stock, took over the assets and liabilities of the Chicago Gasket Co., 7029 Stony Island Avenue, Chicago, and the E. A. Wilcox Mfg. Co., 6330 Stony Island Avenue, Chicago, and has built a new factory at East Seventy-seventh Street and Anthony Avenue for the manufacture of gaskets. Officers are R. B. Anthony, president and treasurer; E. P. Rupprecht, vice-president and general manager; and E. J. Zoll, secretary.

The Elizabeth Street Foundry Co., 5833 Elizabeth Street, Chicago, recently incorporated with \$150,000 capital stock to manufacture gray iron castings and carry on a general foundry and machine shop business, purchased the plant from the former owner, Charles Frankl, who, however, retains an interest in the company. Prominent among those who will direct the affairs of the new company are A. W. Lemme and A. V. Magnuson.

The Wonder Furnace Co., manufacturer of domestic heating furnaces, Niantic, Ill., has purchased the plant of the Pan-American Automobile Co., Decatur, Ill., comprising three buildings with 63,000 sq. ft. of floor space. A 20-ton cupola will be installed and other equipment will be purchased.

The Motor Accessories Corporation, Kansas City, Mo., has purchased from the International Counting Machine Co., a three-story and basement factory, on site 83 x 100 ft., corner of Eighteenth and Wyandotte Streets. The building has 30,000 sq. ft. of floor space. The purchaser, which manufactures radiator caps and steering wheels, moved to the top floor of the building April 1, and now will occupy one-half of the structure, leasing the remaining space.

Peter H. Cooper & Son, Pocahontas, Ark., have opened a foundry and machine shop in a new structure at Walnut Ridge, Ark.

The Twin City Steel Mfg. Co., 2652 Thirty-fourth Avenue, South Minneapolis, Minn., is in the market for an 8-in. Landis pipe cutting and threading machine.

Plans are being completed by the Bassick Mfg. Co., 2650 North Crawford Avenue, Chicago, manufacturer of oiling devices and equipment, for a one-story addition, 198 x 300 ft., to cost \$145,000 with equipment. Robert C. Ostergren, 155 North Clark Street, is architect.

The City Council, Superior, Neb., plans the installation of pumping equipment and 250,000-gal. steel tank on a 100-ft. tower, in connection with proposed extensions and improvements in the municipal waterworks, for which it will soon arrange a bond issue. The Henningson Engineering Co., National Bank Building, Omaha, Neb., is engineer.

The Great Western Sugar Co., Ladysmith, Wis., is said to be planning the construction of a new beet sugar mill in the vicinity of Julesburg, Colo., to cost more than \$650,000 with equipment. A machine shop and power house will be built. It is also completing plans for a sugar beet slicing plant in this section.

The Board of Education, Luverne, Minn., plans the installation of manual training equipment in its two-story and basement high school to cost \$250,000, for which foundations will soon be laid.

The Adel Light & Power Co., Adel, Iowa, has plans for the construction of a new power house, including high-tension substation, estimated to cost \$100,000 with equipment.

The Silver Mfg. Co., Waterloo, Iowa, manufacturer of feed cutters and kindred apparatus, has filed plans for a two-story addition, 50 x 67 ft., at 710 Linden Avenue.

The Commonwealth Edison Co., 72 West Adams Street,

Chicago, will make extensions in its generating plant on Crawford Avenue, to include the installation of a 77,000-kw. steam turbo-generator and accessory machinery.

The Iowa Sand & Gravel Co., Oskaloosa, Iowa, H. D. Bellomy, head, has plans for a one-story sand and gravel handling and distributing plant, 55 x 175 ft., installation to include conveying, loading and other equipment.

Indiana

INDIANAPOLIS, June 29.

PLANS have been filed by the Indianapolis Drop Forge Co., Orange and Market Streets, for a one-story addition.

Bids are being received by the Terre Haute, Indianapolis & Eastern Traction Co., Tribune Building, Terre Haute, Ind., for its proposed one and two-story car barns and shops, 50 x 250 ft., with machine shop, woodworking and other departments estimated to cost \$200,000 with equipment. The works will replace structures destroyed by fire some time ago. Shourds & Stoner, Tribune Building, are architects.

The Board of School Commissioners, 150 North Meridian Street, Indianapolis, is said to be planning the installation of a manual training department in its proposed North Side Shortridge high school, estimated to cost \$1,500,000, for which plans are being prepared by J. Edwin Kopf & Woolling, Indiana Pythian Building, architects.

William Johnson, Indianapolis, has leased property at 1804 Brookside Avenue and will operate a tin and metal working shop.

The Board of Directors, Indiana State Sanitorium, Rockville, Ind., has plans under way for a new power house estimated to cost \$45,000. Charles Brosman, Merchants' Bank Building, Indianapolis, is engineer.

The People's Motor Coach Co., Indianapolis, has leased a two-story building adjoining the plant of the Cole Motor Car Co., and owned by that company. It is 100 x 167 ft., and will be used for a service, repair and garage building, as well as company headquarters.

The Edwards Enameling Co., Indianapolis, has leased property at 835 South Charles Street, and will operate a metal-enameling works.

The Brazil Clay Co., Brazil, Ind., manufacturer of tile, brick and kindred products, has plans for new works, to cost approximately \$200,000 with machinery. It will replace a plant recently destroyed by fire. William Zeller is president.

The City Council, Bluffton, Ind., will soon ask new bids for extensions and improvements in the municipal electric light and power plant and waterworks, to include the installation of additional equipment. Figures recently received have been rejected. C. M. Davenport, Court House, is engineer.

The Hammond Brass Works, Hammond, Ind., has placed contract with the Austin Co. for a new brass foundry on Summer Street. It will be 90 x 320 ft., one story and contain approximately 30,000 sq. ft. of floor space.

St. Louis

ST. LOUIS, June 29.

PLANS have been completed by the Union Electric Light & Power Co., St. Louis, for extensions in its two-story power plant at Tenth and Charles Streets, estimated to cost \$45,000 with equipment.

The Board of Education, Topeka, Kan., plans the installation of manual training equipment in its proposed three-story and basement junior high school to cost \$150,000, for which plans are being prepared by T. W. Williamson & Co., Central Bank Building, architects.

The Fort Smith Cotton Oil Co., 723 North First Street, Fort Smith, Ark., has authorized plans for the rebuilding of the portion of its works recently destroyed by fire, with loss estimated at close to \$100,000 including equipment.

The Public Service Co. of Oklahoma, 107 East Fourth Street, Tulsa, is completing arrangements for the construction of its proposed hydroelectric generating plant on the Grand River, near Bernice, Okla., with power dam 40 ft. high and 640 ft. long, estimated to cost \$1,500,000 including steel tower transmission system.

The City Council, Henryetta, Okla., will equip a pumping plant in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost \$200,000, for which plans are being prepared by the Holway Engineering Co., Wright Building, Tulsa, Okla.

The Capital City Casket Co., 604 East Markham Street, Little Rock, Ark., has filed plans for a new three-story factory, 75 x 160 ft., to cost \$50,000, for which a general

contract has been awarded to Jenkins & Apple, Little Rock.

De Foe & Besecke, 1704 Baltimore Street, Kansas City, Mo., architects, have completed plans for a two-story automobile service, repair and garage building, 50 x 115 ft., to cost \$60,000 with equipment.

The Motor Accessories Corporation, Kansas City, Mo., has acquired a three-story and basement building at Eighteenth and Wyandotte Streets, and will establish a plant for the manufacture of radiator caps and other automobile equipment.

The Board of Education, Tulsa, Okla., plans the installation of manual training equipment in its proposed three-story and basement Hollywood junior high school estimated to cost \$350,000, for which it is expected to ask bids on a general contract in August. Leland L. Shumway, New Wright Building, is architect.

The E. M. Wilhoit Oil Co., Woodruff Building, Springfield, Mo., has plans for a two-story automobile service, repair and garage building, 120 x 400 ft., to cost \$100,000 with equipment. George F. Reed, Springfield, is architect.

The Chamber of Commerce, Camden, Ark., is interested in a project headed by E. A. Heminway, for the establishment of a local plant for the manufacture of lubricating oils and affiliated products, to cost \$150,000 with equipment.

The Tulsa Adjustable Tray Works, Tulsa, Okla., recently organized, will manufacture an adjustable tray for automobiles. Work will be done by contract. J. B. Porter is president.

The Parrot Head Tool Co., Oklahoma City, Okla., has been organized to manufacture drop forged tools, especially pliers and pipe wrenches. Equipment is sufficient for the present but the company may purchase a drop hammer, buffing stand, nickel plating plant and heat treating furnace later. Samuel Pledger is general production manager.

Gulf States

BIRMINGHAM, June 29.

PLANS have been authorized by the Alabama Power Co., Birmingham, for the construction of a hydroelectric generating plant in the vicinity of Wetumpka, Ala., on the Coosa River, designed for an ultimate capacity of 175,000 hp. It will cost \$7,500,000, including steel tower transmission line, and will require about 46 months for completion.

Stahl Brothers, Gonzales, Tex., will erect a two-story addition to their cold storage and refrigerating plant to cost \$35,000 with equipment. William Noonan, Builders' Exchange Building, San Antonio, Tex., is architect.

The Temple Ice & Refrigerating Co., Temple, Tex., will proceed with the construction of the addition to its ice-manufacturing and cold storage plant, estimated to cost \$150,000 with machinery, for which plans have been prepared by Ophuls & Hill, Inc., 112 West Forty-second Street, New York, architect.

The El Paso Electric Co., El Paso, Tex., has arranged for a bond issue of \$3,000,000, a portion of the proceeds to be used for extensions in power plants and system.

Edward Drake, city manager, Ocala, Fla., is asking bids until July 7 for one motor-driven cross compound air compressor, or single cylinder machine of sufficient size to deliver 1000 gal. of water per min. from wells.

The Hughes Tool Co., Houston, Tex., will soon lay foundations for an addition to its plant, 140 x 140 ft., estimated to cost \$37,000 with equipment.

The Louisiana Gravity Canal Co., Alexandria, La., plans the construction of one or more hydroelectric power plants and series of pumping stations in connection with an irrigation project to improve about 300,000 acres of rice lands, estimated to cost approximately \$6,000,000.

The Equitable Equipment Co., New Orleans, machinery dealer, has inquiries out for a Mogul type Baldwin locomotive, 60 to 65 tons capacity; also for an engine-generator set, 100 kw., three-phase, 60-cycle, 220 volts, d. c., with non-condensing engine.

The Buckeye Cotton Oil Co., Greenwood, Miss., is rebuilding its mill recently damaged by fire. It will cost approximately \$175,000.

The Board of City Trustees, Pompano, Fla., W. A. Acton, city manager, is said to have tentative plans for extensions and improvements in the municipal electric light and ice-manufacturing plants, to include the installation of additional equipment.

J. L. Williams, 2028 Fourth Avenue, North, Birmingham, is in the market for a metal stamping machine, for the pro-

duction of metal signs, 30 x 30 in. and smaller, about 30 gage stock.

The Louisiana Pulp & Paper Co., Bastrop, La., has work in progress on a new pulp and paper mill, primarily for the production of kraft papers, with capacity of about 150 tons per day, and plans to have the unit ready for service in the fall. It will represent an investment of more than \$450,000. H. A. L. Swan is secretary.

S. F. McDonald, Lufkin, Tex., is arranging for the erection of a one-story ice-manufacturing plant. The equipment will be electrically operated.

The American Power & Light Co., West Palm Beach, Fla., operating the Southern Utilities Co. and other light and power organizations in this section, has tentative plans for extensions and improvements to cost \$3,500,000. It is also contemplating expansion at its local ice-manufacturing plant and will install a 150-ton compressor and auxiliary equipment.

Lackeos Brothers, Selma, Ala., have taken over a local building and will remodel for a cold storage and refrigerating plant to cost about \$35,000.

The Florida Spanish Tile Mfg. Co., St. Petersburg, Fla., recently formed with a capital of \$200,000, has acquired property, 140 x 200 ft., for the erection of a plant to manufacture tile products, estimated to cost about \$50,000. James E. Coad, 603 Wood Street, is one of the heads of the company.

The Board of City Trustees, Tampa, Fla., W. Leslie Brown, city manager, plans the installation of pumping equipment in connection with extensions in the municipal waterworks, estimated to cost \$225,000.

Canada

TORONTO, June 29.

THE total volume of machine tool business in June was a shade better than that reported for May, and according to inquiries and prospective business demand will continue for some time. The automotive industry is doing some buying, but mostly for replacements.

The plant of the Brantford Computing Scales, Ltd., Brantford, Ont., which has been closed for about two years, has been taken over by the A. J. Deer Co., Inc., Hornell, N. Y. The new owner has been making electrically operated machines for the Canadian market in the United States, but it is now the intention to put the Brantford plant in shape and manufacture the machines there.

The International Paper Co., Montreal, will start work immediately on a large dam at Chelsea, Hull, Que., where extensive water power development will be undertaken, also the installation of large newsprint mills estimated to cost \$5,000,000.

The Utilities Commission, London, Ont., will start work immediately on a \$100,000 extension to the waterworks plant and system.

Plans have been approved for the erection of a \$2,500,000 pulp mill in the province of Manitoba by the Spanish River Pulp & Paper Mills, in which J. D. McArthur, Winnipeg, Man., is associated. It has not yet been definitely decided whether the mill will be erected in the vicinity of Winnipeg, or in the northern part of Manitoba.

Pacific Coast

SAN FRANCISCO, June 24.

PLANS have been filed by the Day & Night Heater Co., Monrovia, Cal., manufacturer of heating apparatus, for a new plant at 828 Shamrock Street.

Powers & Ahnden, 460 Montgomery Street, San Francisco, architects, have awarded a general contract to Cahill Brothers, 55 New Montgomery Street, for a six-story automobile service, repair and garage building estimated to cost \$100,000.

The Board of City Trustees, Clovis, Cal., plans the installation of pumping equipment in connection with proposed extensions in the municipal waterworks. Bonds will be voted.

The Long Bell Lumber Co., Longview, Wash., has awarded a general contract to Grant Smith & Co., Henry Building, Seattle, for twelve one-story additions to its local mill, 75 x 825 ft., and smaller, estimated to cost \$300,000.

The City Council, Mesa, Ariz., is having plans drawn for extensions and improvements in the municipal electric

light and power house, for which a bond issue of \$98,500 has been approved, including the installation of additional equipment. The Weiland Engineering Co., Thatcher Building, Pueblo, Colo., is engineer.

The Pajaro Valley Cold Storage Co., Second and Walker Streets, Watsonville, Cal., has plans for an addition to its cold storage plant, with ice-making department to develop a capacity of 40 tons per day, estimated to cost \$165,000 with machinery.

The Fresno Cooperage Co., Fresno, Cal., has tentative plans for rebuilding the portion of its plant recently destroyed by fire with loss estimated at \$45,000 including equipment.

The National Ice Cream Co., 371 Guerrero Street, San Francisco, has plans for a new ice-manufacturing plant and ice cream factory to cost \$115,000, of which about \$70,000 will be expended for machinery. The company engineering department is in charge.

Plans are nearing completion for a two-story addition to the vocational shops and domestic science building at the George Washington Junior high school, Long Beach, Cal., to be 65 x 132 ft., estimated to cost \$85,000. W. Horace Austin, Pacific Southwest Building, Long Beach, and J. C. Austin, Chamber of Commerce Building, Los Angeles, are associated architects.

The White Flame Ignition Co., Los Angeles, has been incorporated with \$500,000 capital stock to acquire patents formerly held by the Carbo-Gas Co., Toledo, Ohio. It intends to manufacture its own articles, including spark plugs and ignition devices, and may erect a building later. It will be in the market for materials, such as steel rods, wire, brass work, etc. Dr. A. de Clairmont is vice-president.

The Recording Thermometer Co., 654 Mill Street, Los Angeles, has been organized to manufacture as indicated. Plans are only in embryo and announcement will be made later. C. T. Frantz is manager.

Trade Changes

The David J. Joseph Co., Cincinnati, iron, steel and scrap merchant, on July 1 closed its Pittsburgh office and combined the activities of that office with its Youngstown branch. S. H. Schachtel, who has been in charge of the Pittsburgh office, and John R. Foster, vice-president, who has made his headquarters in Pittsburgh, will be located at Youngstown.

The McKees Rocks Iron & Metal Co., doing a scrap iron and steel business, has established a yard at 1200 Island Avenue, McKees Rocks, Pa.

William H. Muller & Co., Inc., of California, importer of iron and steel, has moved from 2 Pine Street, to the Adam Grant Building, 114 Sansome Street, San Francisco. H. J. Schroeder is manager of the Pacific Coast office.

The Reed-Prentice Co., Worcester, Mass., has appointed the Stocker-Rumely-Wachs Co., 117 North Jefferson Street, Chicago, exclusive representative for the Chicago territory, as follows: Illinois, Springfield and north; Indiana, north of Fort Wayne; Michigan, upper peninsula; States of Iowa and Nebraska and parts of Wisconsin.

A court petition has been presented for the dissolution of the Greenville Car & Mfg. Co., Greenville, Pa., an action made necessary by the recent reorganization of the company. The concern was incorporated in 1910, as the Greenville Metal Products Corporation and in March, 1914, its name was changed to the Greenville Steel Car Co. Again in December, 1924, following the reorganization it assumed the name of the Greenville Steel Car Corporation. The new company is headed by F. L. Fay, president and F. D. Foote, secretary.

The Republic Flow Meters Co., Chicago, has opened a factory branch office at 535 Bramson Building, Buffalo. W. W. Barron, formerly at the Chicago office, will be in charge.

The name of the Burdick-Atkinson Corporation, Hamburg, N. Y., has been changed to the F. R. Atkinson Spring Co. and under the personal management of Mr. Atkinson will continue to manufacture cushion springs for the automotive industry.

Pilling & Co., Inc., has moved its Philadelphia office to the Franklin Trust Building, 1500 Chestnut Street.

The Diamond Saw & Stamping Works, Buffalo, has moved into its new plant at 347 Davey Street.

The Dean Hill Pump Co., Anderson, Ind., has appointed the firm of Wagner & Wagner, El Paso, Tex., as representative in that territory, and J. Harry Burroughs, 502 Marine Trade Building, Buffalo, as district representative there.

The name of Roulan & Roberts, 217 North Water Street,

Foreign

THE Chamber of Commerce of the United States of America in the Argentine Republic, Buenos Aires, Argentina, has received an inquiry from a company at Buenos Aires, desiring to get in contact with American manufacturers of machinery for stamping sheet tin; also is in the market for zinc in plate form.

The Foundation Co., 120 Liberty Street, New York, has contracted with the Government of Greece for draining and irrigating the Vardar Basin in Macedonia, to include the installation of electric power equipment, pumping machinery and other apparatus. The project is stated to cost \$26,000,000 and will be handled by the Foundation Co. on a cost-plus basis.

The Department of Commerce, Washington, has information regarding a sugar manufacturing company in Java which plans extensions in its mills and operating facilities, with the installation of considerable new equipment, according to information received from J. F. Van Wickel, Batavia, Java, United States Trade Commissioner, reference No. 27132.

The Foreign Trade Bureau, Philadelphia Commercial Museum, Philadelphia, has received the following inquiries: (43713) from Vadime Riess, Tauritscheskaia's St. 13, Petrograd, Russia, desiring to get in touch with American manufacturers of standard precision gages and calibrating instruments; (43723) from Fernando Pascual & Sons, 14 Celis Aguilera, Fajardo, Porto Rico, desiring to get in contact with American manufacturers of ice-making and refrigerating machines, motorboats, etc.; (43706) from Alberto Giralt, Casanova 155, Barcelona, Spain, wishing to get in touch with American manufacturers of machinery for sorting oranges and mandarins; (43722) from G. R. Adamo & Son, 509 Albert Road, Salt River, Cape Colony, South Africa, wishing to get in touch with American manufacturers of ice-making and refrigerating machines, knitting machinery, cooking utensils, miscellaneous hardware, portable houses, wire fencing and netting.

Rochester, N. Y., has been changed to the Rochester General Boiler Repair Shop. W. J. Roulan is president.

The American Heat Economy Bureau, Inc., K. Huessner, president, Wabash Building, Pittsburgh, has opened a branch office under the name of the International Heat Economy Bureau, Ltd., Brook House, Walbrook, London, which is in charge of John Miles, formerly associated with the Freyn & Brassert Co.

Jacob Sonnenschein, manufacturers' selling agent in New York for 18 years, has made San Francisco his permanent headquarters and is engaging in the same line in the Monadnock Building in that city. He is interested in making agency connections for the San Francisco territory with manufacturers of machine, carriage and stove bolts.

The William F. Hirschman Co., Buffalo, manufacturer of ventilating equipment and machinery, has completed the removal of its plant and headquarters to Le Roy, N. Y., where operations will be continued. The company recently acquired a portion of the plant of the Le Roy Cotton Mills for a new works and plans to develop increased capacity. William F. Hirschman is head.

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Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

Bars, Shapes and Plates		Per Lb.
Bars:		
Refined iron bars, base price.....	3.24c.	
Swedish charcoal iron bars, base.....	7.00c. to 7.25c.	
Soft steel bars, base price.....	3.24c.	
Hoops, base price	4.49c.	
Bands, base price	3.99c.	
Beams and channels, angles and tees, 3 in. x $\frac{1}{4}$ in. and larger, base	3.34c.	
Channels, angles and tees under 3 in. x $\frac{1}{4}$ in. base	3.24c.	
Steel plates, $\frac{1}{4}$ in. and heavier.....	3.34c.	
MERCHANT STEEL		Per Lb.
Tire, $1\frac{1}{2}$ x $\frac{1}{2}$ in. and larger.....	3.30c.	
(Smooth finish, 1 to $2\frac{1}{2}$ x $\frac{1}{4}$ in. and larger)	3.65c.	
Toe-calk, $\frac{1}{2}$ x $\frac{3}{8}$ in. and larger.....	4.20c.	
Cold-rolled strip, soft and quarter hard.....	7.00c.	
Open-hearth spring steel	4.50c. to 7.00c.	
Shafting and Screw Stock:		
Rounds and hex.....	4.00c.	
Squares and flats.....	4.50c.	
Standard tool steel, base price.....	15.00c.	
Extra tool steel	18.00c.	
Special tool steel	23.00c.	
High-speed steel, 18 per cent tungsten.....	70c.	
SHEETS		
Blue Annealed		Per Lb.
No. 10	3.89c.	
No. 12	3.94c.	
No. 14	3.99c.	
No. 16	4.09c.	
Box Annealed—Black		
Soft Steel	Blued Stove	
C. R. One Pass	Pipe Sheet	
Per Lb.	Per Lb.	
Nos. 18 to 20.....	3.80c. to 4.00c.	
Nos. 22 and 24.....	3.85c. to 4.25c.	4.60c.
No. 26	3.90c. to 4.30c.	4.65c.
No. 28*	4.00c. to 4.40c.	4.75c.
No. 30	4.20c. to 4.60c.	
Galvanized		Per Lb.
No. 14	4.10c. to 4.50c.	
No. 16	4.25c. to 4.65c.	
Nos. 18 and 20	4.40c. to 4.80c.	
Nos. 22 and 24.....	4.55c. to 4.95c.	
No. 26	4.70c. to 5.10c.	
No. 28*	5.00c. to 5.40c.	
No. 30	5.50c. to 5.90c.	

*No. 28 lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Weld		Wrought Iron	
Black	Galv.	Black	Galv.
$\frac{1}{2}$ in. Butt....	46 29	$\frac{1}{2}$ in. Butt...	4 +19
$\frac{3}{4}$ in. Butt....	51 37	$\frac{3}{4}$ in. Butt...	11 + 9
1-3 in. Butt...	53 39	1-1 $\frac{1}{2}$ in. Butt.	14 + 6
2 $\frac{1}{2}$ -6 in. Lap...	48 35	2-in. Lap....	5 +14
7 & 8 in. Lap...	44 17	3-6 in. Lap...	11 + 6
11 & 12 in. Lap.	37 12	7-12 in. Lap.	3 +16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron,
7 $\frac{1}{2}$, 25, 10 and 5 per cent off list

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER		Per Lb.
Bright, basic		4.25c.
Annealed, soft		4.50c.
Galvanized, annealed		5.15c.
Coppered, basic		5.15c.
Tinned, soft Bessemer		6.15c.

*Regular extras for lighter gage.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of *THE IRON AGE*, under the general headings of "Iron and Steel Markets" and "Non-Ferrous Metals."

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	18 $\frac{1}{4}$ c. to 19 $\frac{1}{4}$ c.
High brass wire	18 $\frac{1}{4}$ c. to 19 $\frac{1}{4}$ c.
Brass rods	15 $\frac{1}{4}$ c. to 16 $\frac{1}{4}$ c.
Brass tube, brazed	26 $\frac{1}{4}$ c. to 27 $\frac{1}{4}$ c.
Brass tube, seamless	22 $\frac{1}{4}$ c. to 23 $\frac{1}{4}$ c.
Copper tube, seamless	23 $\frac{1}{4}$ c. to 24 $\frac{1}{4}$ c.

Copper Sheets

Sheet copper, hot rolled, 20 $\frac{1}{4}$ c. to 21 $\frac{1}{4}$ c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin	Grade "AAA"	Grade "A"	Coke—14x20	Prime	Seconds
Charcoal	Charcoal	Charcoal	80 lb... 90 lb... 100 lb...	\$6.15 6.30 6.45	\$5.90 6.05
14x20	14x20	14x20	100 lb...	6.65	6.40
IC.. \$11.25	\$8.85	IC..	7.85	7.60	
IX.. 12.85	10.85	IX..	9.00	8.75	
IXX.. 14.40	12.55	IXX..	10.35	10.10	
IXXX.. 15.75	13.85	IXXX..	11.35	11.10	
IXXXX.. 17.00	15.05	IXXXX..			

Terne Plates

8 lb. coating, 14 x 20

100 lb.	\$7.00 to \$8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	60c.
Bar	62c. to 65c.

Copper

Lake ingot	16 $\frac{1}{4}$ c.
Electrolytic	16 $\frac{1}{2}$ c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	9 $\frac{1}{4}$ c.
Sheet zinc, No. 9 base, casks.....	12 $\frac{1}{2}$ c., open 13c.

Lead and Solder*

American pig lead	9 $\frac{1}{2}$ c. to 12c.
Bar lead	12c.
Solder, $\frac{1}{2}$ and $\frac{1}{2}$ guaranteed.....	39 $\frac{1}{4}$ c.
No. 1 solder	36 $\frac{1}{2}$ c.
Refined solder	30c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

Antimony

Asiatic	20c. to 21c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.....	38c.
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Old Metals

The market is unsettled and trading is slow. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	11.50
Copper, heavy wire	11.00
Copper, light bottoms	9.00
Brass, heavy	6.75
Brass, light	5.75
Heavy machine composition	8.75
No. 1 yellow brass turnings	7.75
No. 1 red brass or composition turnings	8.00
Lead, heavy	7.25
Lead, tea	5.75
Zinc	4.25
Cast aluminum	17.00
Sheet aluminum	17.00

